Workbench

JULY
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1960

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PORTABLE ROUTERS and PLANERS

WORKBENCH

BACK YARD SWIMMING POOLS

WATER SOFTENER KIT

TAKE-APART SCREEN HOUSE

UNIQUE GARDEN LIGHT

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UNIVERSITY MICROFILM
313 NORTH 1ST ST
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HUGE CLEAN-UP SALE! SAVE MAKE MONEY! FREE GIFTS!

POCKET-SIZE TRANSISTOR RADIO

ONLY **$4.95**

Incredible but true! A real Transistor radio for only $4.95! Has no tubes! Operates on two tiny batteries with unbelievable power. Lightweight and compact . . . No larger than pack of cigarettes. You'll marvel at its rich tone, wide reception. For individual listening at its best, order your set NOW! Complete with HI-FI Earphone and two batteries. Nothing more to buy. Only $4.95 each plus 30¢ for postage or $5.25 in all!

PRICES SMASHED ON BRAND NEW NATIONALLY ADVERTISED ELECTRIC SHAVERS!

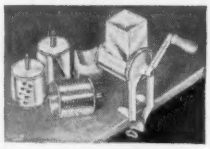
Lowest prices in U. S. of wonderful, brand new, factory fresh, latest models Men's and Women's Electric Shavers. In unopened factory cartons. COMPLETE! Nothing left out—all attachments included. We unqualifiedly GUARANTEE you will be delighted, or purchase price cheerfully refunded. We have over one million satisfied customers. We'll please you, too! Order at these low prices.

MEN'S MODELS	Others Charge	Our Price
Ronson—C. F. L.	$20.00	$11.85
Norelco—Speedshaver	24.95	14.50
Sunbeam Rollmaster	24.95	16.40
Remington Roll-A-Matic	29.95	17.85
Remington Auto & Home	31.95	19.85
LADIES' MODELS	**Others Charge**	**Our Price**
Lady Sunbeam	$12.95	$ 8.85
Lady Ronson	16.50	9.75
Norelco-Coquette	17.50	9.85
Remington-Princess	17.50	10.35

We mail orders within 10 hours, or less, except in unusual circumstances. EXTRA! FREE! If you send this ad with your order, we'll send you a wonderful FREE gift—a knife that looks like a key!

FREE! FREE!

SALAD MAKER & FOOD GRINDER



EXTRA! FREE!

We will send you the wonderful Salad Maker & Food Grinder pictured—if you order only $7.98 or more of merchandise from this ad. This is an L & M EXTRA FREE gift. Complete with three cutters. This wonderful machine Shreds, Chops, Peels, Slices, Grates, Waffles, Crumbs, etc., etc. (Please send 35¢ extra for pstg. & hdlg.) **SAVE THIS AD!**

GIANT PLASTIC SHEET 1¢ ea.

9'x12' (108 Sq. Ft.)

Others charge $1.00 or more for huge 9x12 ft. (108 sq. ft.) tough, durable, transparent plastic sheet, but our price is only One Cent each, when you buy another sheet for 99c. You get TWO 9x12 ft. sheets for $1.00! First quality not seconds or throwouts! Protects rugs, furniture and floors when painting. Perfect cover for cars, boats, buggy, appliances, bicycles, lawn furniture, etc. Make into aprons, tablecloths, lamp shades, appliance covers, etc. Water-proof, greaseproof, dirtproof, clean with damp cloth. Each cover is one piece. No seams. You pay Only $1.00 for TWO 9x12 ft. plastic sheets (plus 10c for pstg.), or *$1.10 in all.*

AMAZING NEW PAINT SPRAYER Only $795

Save $10.00! Sprays paint, varnish, enamel, shellac, etc. Full 25-oz. capacity. Does the equivalent of 50 lbs. pressure. Plug into any 115 volt, 60 cycle circuit. Cord included. Fully guaranteed. Save at low sale price. Only $7.95.

YOUR NAME & ADDRESS GLOW in the DARK on COACH & FOUR SIGN! 79c

Amazing, new midnight black COACH & FOUR SIGN at lowest price on which your name and house number GLOW IN THE DARK—without electric lights or other attachments—lowest price in U.S.! Friendly, attractive sign reflects your friendship and warm feeling for friends, neighbors, etc. Enhances value of your property. Easy to install. Almost 16" long, 5¾" high. Only 79c plus 21c postage and handling, or $1 ea.—or 3 for only $2.50!

AUTOMATIC NEEDLE THREADER 59¢ ea.

This amazing Two-Hole Automatic Needle Threader threads any style or size needles instantly. No eye straining. No frantic stabbing back and forth—just drop end of thread into groove, push button and needle is threaded! Sturdy, durable. Not to be confused with single-hole needle threaders. Order NOW! Others charge $1.00 each for one-hole needle threaders. Our price—only 59c each, or 2 for only $1.00!

World's Smallest ADDING MACHINE

Adds, Subtracts, Multiplies and Divides up to ONE BILLION!

Only $1.89

Precision-made by master craftsmen. Enduring, high-quality steel mechanism, not tin or plastic like others. Adds, subtracts, multiplies, divides—up to 1,000,000,000! Never makes a mistake. Save money, avoid errors, wherever, whenever you shop. Works with lightning speed with same precision as machine costing hundreds of dollars!

We GUARANTEE our adding machine is finest value for the money. Only $1.89 in all!

AUTOMATIC ELECTRIC COFFEE MAKER

15-CUP CAPACITY

$8.95 Latest model — in factory-sealed carton. Brews up to 15 cups of perfect coffee automatically. Plug in, set strength preferred—mild, medium or strong—and forget it. Stops automatically when done. Stays piping hot for hours—ready to serve anytime. Life-time body of high polish aluminum finish! Dripless spout . . . stays clean. Heavy-duty Thermostat. Heat resistant handle. Two heating elements complete with cord set. $19.49 value only $8.95 plus $1.00 for pstg. and hdlg. or $9.95.

EXTRA! SPECIAL! Wonderful new 40-cup size Automatic Electric Coffee Maker only $19.95!

200—6 FT. LONG BALLOONS 89¢

Twist into thousands of shapes such as Dinosaurs, dogs, elephants, cats, zebras, tigers, lions, etc. Others charge 25c each for smaller balloons but we buy in huge quantities so our price is only 200 for 89c plus 11c for postage and handling or **$1.00 in all.**

100 SPOOLS SEWING THREAD 88¢

SENSATIONAL! World's greatest thread value — bar none! 100 spools of wonderful mercerized thread. In every color imaginable—16 shades of blue alone! Now you can match ANY color under the sun! Perfect for mending, darning, sewing, patching. 100 spools for 88c plus 12c for postage and handling or **$1.00 in all!**

16 RETRACTABLE BALL PENS $1.00

100 for $6.25—Refills 32 for 98¢!

Guaranteed to write as well as $1.00 pens. Push button, pen writes. Push again, pen retracts. Your choice of black, red, blue or green ink. 16 pens only $1.00. REFILLS—same choice of ink colors, 32 for $1.00. 175 Refills for $4.98.

LARGE FAMILY-SIZE 10-WAY ELECTRIC COOKER

Only **$6.75**

World's most amazing and lowest price, unconditionally guaranteed appliance that automatically Roasts, Fries, Stews, Cooks, Warms, Casseroles, Blanches, Steams, etc. Just set dial—that's ALL. Powerful Thermostat takes care of everything! Big 6-qt. size. Comparable to those advertised at $39.95—our price $6.75 plus $1.00 postage or $7.75 **in all!** FREE FIREKING ovenglass cover. Also **FREE**—big cook book.

20 FAMOUS BRAND ZIPPERS 88¢

Nationally advertised. Includes Talon, Waldes, Conmar, Segal-lock, etc. We send 20 Zippers carefully selected, guaranteed to please in these sizes: 5, 6, 7, 8, 9, 10, 11, 12, 14. All for 88c plus 12c pstg. & hdlg. or **$1.00 in all.**

50 Yds. NEW LACE 88¢

In enchanting patterns and designs. Vals, edges, insertions, etc. in beautiful colors and full widths. For women's, girls' and babies' dresses, pillow slips, decorative edgings on many articles, etc. Pieces up to 10 yds. in length. NO small pieces, 50 yds. only 88c plus 12c or **$1.00 in all!** FREE with order—100 Assorted Buttons.

NEW PINKING SHEARS ONLY 79¢ Pair

We guarantee our Pinking Shears are as good or better than those you pay $5.00 or more for. They cut and pink ANY material at the same time, with smooth cutting action. Leave neat notched edge. All metal—no plastic. Only 79c plus 31c for pstg. & hdlg., or $1.10 in all!

MAKE ADDITIONAL TREMENDOUS SAVINGS BY BUYING AT THESE EXCEPTIONALLY LOW AGENTS' PRICES!

When you purchase from us at quantity prices, you make tremendous savings. Buy now for the needs of your own family, relatives, neighbors, etc., or for resale purposes as many of our agents do. But DON'T DELAY, as prices are subject to change without notice.

	Lots of 3	Lots of 6	Lots of 12	Lots of 3 Doz.
Sewing Machine	$ 5.25	$ 9.95	$ 17.75	$ 45.00
Plastic Sheet	1.50	2.70	5.00	14.40
Adding Machine	5.25	9.95	18.00	48.60
Paint Sprayer	21.25	42.00	81.00	216.00
Coach & Four	2.25	4.20	7.20	19.80
Needle Threader	....	....	5.50	13.95
Coffee Maker (15-cup)	....	55.00	101.50	288.00
Coffee Maker (40-cup)	....	114.00	222.00	648.00
200 Balloons	2.70	5.00	9.00	25.20
Cooker	....	45.00	81.00	....
Zippers	2.70	5.00	9.00	25.20
Lace	2.70	5.00	9.00	25.20
Pinking Shears	....	5.75	9.60	27.00

Electric Shavers—Price of One Shaver shown at top of this ad. In lots of 6 or more, deduct 75c for **each** Shaver you buy.

All prices F.O.B. St. Louis. C.O.D. orders accepted if you send 25% of purchase with order.

L & M COMPANY • Dept. WE-30, Box 881, St. Louis, Mo.

FREE!

We'll give an extra free gift worth $1.00 with each order for $3.00 or more! MINIMUM ORDER accepted $1.00. PLEASE include 25c for packing & hdlg. for EACH order regardless of size.

MONEY-BACK GUARANTEE COUPON

L & M Co., Dept WE-30, Box 881, St. Louis, Mo.

Please send my order FAST! You guarantee to please or I get my money back when I return merchandise. I enclose $.....

Send my order C.O.D. I enclose 25% or $..... I will pay postman balance of cost plus postage fee when my package arrives.

QUANTITY	ARTICLE	PRICE

**Send additional order on separate sheet of paper.*

Please PRINT Name _____

Address _____

Town or City _____ Zone ____ State ____

DON'T FORGET MY FREE GIFTS!

ART LINKLETTER SAYS:

(One of America's Most Popular Radio and Television Stars)

"Take my word for it...

You'll never find an easier, more pleasant way to MAKE EXTRA MONEY FOR CHRISTMAS!"

"You've never seen such beautiful Christmas cards – and neither have your friends and neighbors! The minute they see the beautiful new CORONATION COLLECTION of Doehla Greeting Cards, they'll want some. Why, you can pick up $50 to $250 just by taking their orders – that's how beautiful these cards are! But see for yourself – send 25¢ for the big 98-piece sample assortment shown here."

"Christmas Money" Coupon

GOOD FOR:

1 **$2.75 Worth of Greeting Cards** for only **25¢**

for Christmas and All Occasions

2 **Full details on how to earn, in spare time, $50 to $250 between now and Christmas**

HARRY DOEHLA and ASSOCIATES
Studio W167
(Address any one of these three offices) NASHUA, N. H. / ST. LOUIS 1, MO. / PALO ALTO, CAL.

This "Christmas Money" Coupon, when filled out and mailed with only 25¢, will bring you one GIANT 98-piece assortment (regular price $2.75) of Art Linkletter "Favorite Selections" from the CORONATION COLLECTION of Doehla Christmas and All Occasion Greeting Cards. You will also receive several *more* of Art Linkletter's Favorite Doehla CORONATION COLLECTION Christmas Card Assortments *on approval*, together with details of the famous Doehla "Christmas Money" Plan and the "Win a Visit with Art Linkletter" Contest.

Your Name.....
(Please Print Clearly)

Address.....

City.....Zone....State.....

☐ Check here for Special FUND-RAISING Plan for church, school, club or other organization. Please give name of organization.

...as a special offer to introduce you to "MY FAVORITE SELECTIONS"

from the Coronation COLLECTION

THE above "Christmas Money" Coupon is good for the giant 98-piece assortment of Christmas and All Occasion greeting cards shown here (regular price $2.75) – if sent with only 25¢ to help cover packing and mailing costs.

We make this Special Introductory Offer to friends of Art Linkletter to show how easy it is to earn $50 to $250 between now and Christmas in your spare time with the wonderful Doehla "Christmas Money" Plan. No experience is needed. To prove it, we will send –on approval–several other Art Linkletter "Favorite Selections" from the famous CORONATION COLLECTION. Just SHOW them to folks you know. That's all. Their beauty and low price will do the rest!

Mail "Christmas Money" Coupon At Once

Folks often order 3 and 4 boxes at a time! You earn up to 60¢ a box – even more on certain Gift and Novelty items. Soon you have $50 to $250, to spend as you wish. But prove it to yourself. Mail the "Christmas Money" Coupon (with only 25¢) NOW for your giant $2.75 box of cards – yours to keep whether or not you do anything about the Doehla "Christmas Money" Plan! Address: **HARRY DOEHLA and ASSOCIATES, Studio W167, Nashua, N. H., or St. Louis 1, Mo., or Palo Alto, Calif.** *(Address office nearest you.)*

WIN A Visit to Hollywood with ART LINKLETTER!

–all expenses paid. Free details with your sample cards.

One of These Nation-Wide Associates Will Give You Prompt Service in Your Area:

Boulevard Art Publishers, Chicago 4, Ill.
Iva E. Brundage & Sons, Detroit 4, Mich.
Capitol Card Co., Inc., New Orleans 12, La.
Columbia Card Co., Ltd., Dallas 1, Tex.
Harry Doehla Company, Nashua, N. H. & Palo Alto, Calif.
Greetings Unlimited, St. Paul & Minneapolis, Minn.
Hye-Quality Card Co., Inc., Kansas City 6, Mo.
Imperial Greeting Card Co., Los Angeles 12, Calif.
Midwest Card Co., St. Louis 1, Mo.
Western States Card Co., Denver 11, Colo.

Yes! You Get This $2.75 98-Piece Assortment for only 25¢

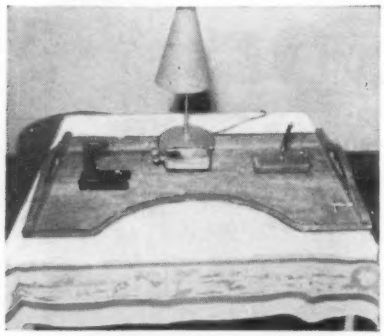
Yes, you get 98 useful items in this big box. It's a joy to have on hand, always ready for every greeting card need. Included in this Giant Box Assortment are generous quantities of cards for:

Christmas | New Babies
Birthdays | Thank You
"Get Well" | Gift-Cards
Sympathy | Anniversaries
Children's Toycards
Correspondence Notes, etc.

LETTERS TO THE EDITOR

Dear Editor:

I enjoy reading your magazine, which is getting better all the time, and have gathered a lot of good ideas from it. I am sending snapshots of several projects I have built. Building things is a hobby of my older years, and I would like to trade ideas with other readers with the same interests.—Louis O. Burgtorf, R. #1, Cheboygan, Mich.



Dear Mr. Burgtorf:

Many thanks for the photos of some of your projects. The color photos of the upholstered stools we could not reproduce, but the black and white shot of the lap tray that has a lamp, penholder and magnifying glass for someone with poor eyesight is shown here.

Gentlemen:

First, let me compliment you on the decided improvement in the last issue of WORKBENCH. There are many more features of interest to me than in the past. Keep up the good work.

I was interested in the article on the home-assembled electronic organ, but am wondering if you have any data on a do-it-yourself air-operated caliope. I understand there is a concern manufacturing kits for assembling a small, compressed-air-operated caliope. Can you give me any information on this?—Geo. A. Smith, Tuscaloosa, Ala.

Dear Mr. Smith:

We hope to continue publishing articles of interest to you and the other readers. We have no information on the caliope, but perhaps some reader will know of it and let us know. The idea sounds intriguing, and if we can get the information, we might publish a story on the assembly of a caliope.

Dear Sir:

In your article on radial-arm saws you said that both the DeWalt and the SawSmith have electric brakes. I believe that the SawSmith has a mechanical brake.
Mr. R.L., San Francisco.

Dear Mr. R.L.:

You are right, we made an error. The SawSmith uses the friction of the belt drive to stop the spinning blade. The DeWalt has an electro-magnetic setup that actuates a brake when the keyswitch is turned off.

Dear Editor:

Are there such things as lefthand portable circular saws? I am left-handed, and when I use a portable saw it throws sawdust in my face. This might seem humorous, but it is not to me and other left-handed craftsmen.
Mr. C.E.K., Indiana.

Dear Mr. C.E.K.:

We agree that your problem is not humorous, and could be dangerous. We suggest you look over the heavy-duty line of Skilsaws. The motors and handles on these saws are in line with the blades, and the blades are on the left-hand side of the units.

Dear Editor:

I received my first issue of WORKBENCH today, and after looking through its pages I am well-pleased, especially the clean and easy to read drawings. I hope that my first impression upon receiving my first issue will always be the same.
F. O'Hare, Hillsdale, N.J.

Dear Mr. O'Hare:

Thanks for the kind words about WORKBENCH. *We will try to continually publish articles of interest, and are constantly working to make our drawings even more easy to read.*

Dear Editor:

I build a lot of projects with my electric welder but have a problem with C-clamps. Are any made with screws that are not damaged by weld spatter? Where can I buy them?
Mr. C.M.R., Pittsburgh, Pa.

Dear Mr. C.M.R.:

Yes, there are such clamps, the best of which are made by the Adjustable Clamp Co., 415 N. Ashland, Chicago 22, Ill. These clamps have a sliding sleeve that constantly keeps the clamp screw covered, yet does not interfere with normal operation of the clamp. Incidentally, in a future issue of WORKBENCH *we will have an article covering the uses of all the clamps in the Model Shop.*

Dear Sirs:

Got the name of your magazine from the press department of the American Embassy in Bonn. Have long been interested in American magazines for the hobbyist and craftsman and would like to correspond with some of your readers. Am 35 years old, an industrial merchant and my hobbies include stamps, post cards, sports and the theater. I can correspond in German, English, French, Spanish and Portuguese.
Mr. Ernst Kny, Wesseling b./Cologne, Waldorfer-Strasse 20, Germany.

Dear Mr. Kny:

While we do not encourage "pen pals," and seldom publish the addresses of readers, we considered your letter to be of sufficient interest to appeal to many of our subscribers. When writing to Mr. Kny, remember that overseas postage is about double that for domestic mail.

While WORKBENCH *is distributed primarily in the United States and Canada, we do have a number of overseas subscribers, and your editor has received letters from as far away as India and Australia.*

Gentlemen:

Am enjoying my subscription to WORKBENCH, and have started on a new project as a result of reading the magazine. I work with plastics, and have signed up with the Interstate people (Interstate Training Service, Portland, Ore.) to learn more about the material. Also, do you have a source of information on plastics?
W. E. Nason, Lake Charles, La.

Dear Mr. Nason:

We would recommend the Casolite Co,. in Woodstock, Ill., as a source not only of plastic materials, but of books and information on the uses, applications and methods of working with plastics of various kinds.

Jay W. Hedden

Jay W. Hedden, Editor

WORKBENCH volume 16 • number 4

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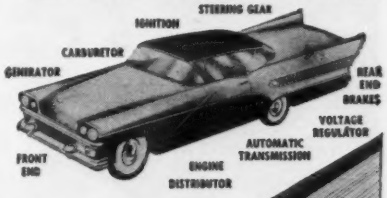
HOW TO FIX ANY PART OF ANY CAR

QUICKLY--EASILY--RIGHT!



FREE 7-DAY TRIAL

WHETHER you're a beginner or an expert mechanic, now you can "breeze through" any "fix-it" job from simple carburetor adjustment to complete overhaul. Just look up job in index of MOTOR'S big brand-new Auto Repair Manual. Follow simple step-by-step directions, clear pictures. Presto—the job is done!

No guesswork! MOTOR'S MANUAL takes you from "scratch." Shows WHERE to start. WHAT tools to use. Covers EVERY job on every car built from 1953 thru 1960!

Everything You Need to Know "Boiled Down" from 176 Official Shop Manuals

NEW, REVISED, ENLARGED Edition now contains the "meat" from over 176 OFFICIAL shop manuals, simplified for you. 30,000 essential repair specifications on 25 different makes. Over 1,000 big pages. 2,850 this-is-how" pictures. 225,000 service and repair facts. Leads beginners every step of the way. Time-saving factory repair procedures for experts. Instructions and pictures so clear you can't go wrong. Used by U.S. Army and Navy.

Covers All Models — 1953 thru 1960

Buick, Cadillac, Chevrolet, Chrysler, Continental, Corvair, Dart, De Soto, Dodge, Edsel, Falcon, Ford, Hudson, Imperial, Jeep, Lincoln, Mercury, Nash, Oldsmobile, Plymouth, Pontiac, Rambler, Studebaker, Thunderbird, Valiant

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Same FREE Offer on MOTOR'S New Truck Manual

Brand new! Covers EVERY job on EVERY popular make gasoline and Diesel truck made since 1952. FREE 7-Day Trial. Check proper box in coupon.

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(Attach to postcard for faster action)

MOTOR BOOK DEPT.
Desk 0967, 250 W. 55th St., New York 19, N. Y.
Rush to me at once (check box opposite book you want):

☐ **MOTOR'S New AUTO REPAIR MANUAL.** If O.K., I will remit $2 in 7 days; $2 monthly for 2 months and a final payment of $1.95 (plus 45c delivery charges) one month after that. Otherwise I will return the book postpaid in 7 days. (Foreign price, remit $10 cash with order.)

☐ **MOTOR'S New TRUCK REPAIR MANUAL.** If O.K., I will remit $3 in 7 days, and $2 monthly for 3 months, plus 45c delivery charges with final payment. Otherwise I will return book postpaid in 7 days. (Foreign price, remit $11 cash with order.)

Print Name ..... Age .....
Address .....
City ..... Zone ..... State .....

☐ Check box and save 45c delivery charge by enclosing WITH coupon in envelope entire payment of $7.95 for Auto Repair Manual (or $9 for Truck Repair Manual) plus sales tax. Same return-refund privilege.

keeping up with craft and home products

In communicating with companies whose products are described in this department, please mention WORKBENCH.

Flexible Calking Material

COMBINATION OF rubber and asphalt is used in this calking compound available in cartridges for use in standard guns. Tested from 20 deg. below zero to 100 deg. above to maintain flexibility, moisture resistance and adhesion. Ideal for repairing roofs, gutters, driveways, foundation cracks, etc. Join Seal, U. S. Chemical Co., 1345 N Building, Lincoln, Nebr.

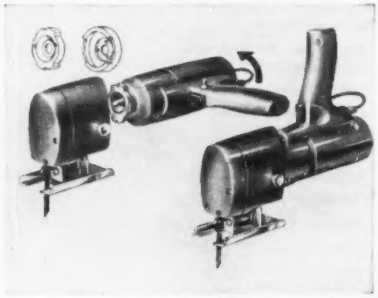
Buying Government Surplus

EVERY YEAR millions of dollars worth of merchandise is sold for as low as 2 or 3 cents on the dollar. New 64-page directory tells where sales are, how to buy, gov't. coding, etc. Directory is $1.00 from Aviation Surplus Center, Box 789, York, Pa.

Four Hammers in One

NAILHEAD, ball peen, plastic head and hatchet are interchangeable on this unusual tool. Various heads are tapped on, removed with taper pin. $4.95 for hammer and 3 driving heads, hatchet head $1.49 additional. Dumas Co., 1 Jackson St., Worcester 8, Mass.

Multi-Purpose Drill Motor



FOLLOWING TREND toward making ¼-in. drill motor basis for complete shop is Powr-Loc line of tools sold by Montgomery Ward. Attachments include sander, jig saw, hedge trimmer, circular saw.

Filament-Tester Kit

KIT-ASSEMBLED TESTER is operated on penlite dry cells, tests for open filaments in series-circuit TV and radio receivers. Will check directly 7 and 9-pin miniature tubes, 7-pin battery-type, octal, located and CRT tubes. Also will check household and heavy-duty cartridge fuses. Condition of own dry cells can be tested. Model T-5 Rapid Filament Tester Kit is $4.50 from Paco Electronics Co., Inc., Glendale, L. I., N. Y.

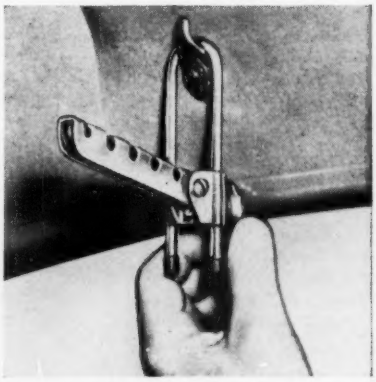
Outdoor-Project Plans

NEW SET of "build-it-yourself" plans includes garden table, cold frame, window box, garden-tool rack. 25 cents per copy from Dept. PD, Stanley Tools, 11 Elm Street, New Britain, Conn.

Free Literature

FASTENING METHOD especially recommended for quick and easy attachment of light and medium-weight fixtures to walls is described in bulletin "Star Plastic Anchors," available from Star Expansion Industries, Mountainville, N. Y.

Auto "Clothes Closet"



SLIPPED OVER coat hook in your car, this device permits adding five coat hangers. Fine for trips, bringing home dry cleaning. When you arrive, garments, still on hangers, can be carried all in one trip. Adjustable to fit all cars. Portable Car & Closet Hanger, $1, Empire Enterprises, 163 Mansion St., Coxsackie, N. Y.

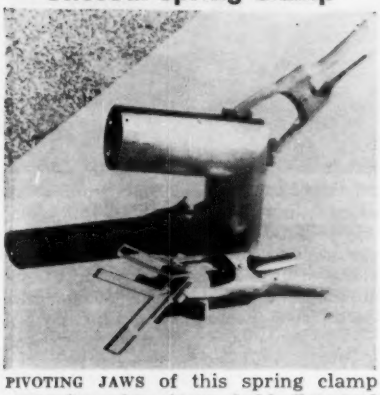
Wireless Intercom Set

JUST PLUG in these sets and start talking. Eight channels permit having four different conversations at the same time. Automatic volume control, up-front static eliminator. Feiler Engineering & Mfg. Co., 8026 N. Monticello Ave., Skokie, Ill.

Sliding-Door Track Sets

HARDBOARD, PLYWOOD, GLASS sliding panels are accommodated by these aluminum-track sets packaged for panels ⅛, ¼, ⅜, ½ and ¾ in. thick. Tracks require no hangers, rollers or sheaves. For two thickest panels, nylon buttons are provided for lower edges to assure smooth action. For information contact Macklanburg-Duncan Co., Box 1197, Oklahoma City 1, Okla.

Unusual Spring Clamp

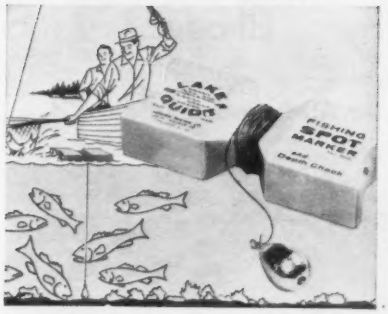


PIVOTING JAWS of this spring clamp permit using it to hold flat and curved surfaces at all angles. Can be used for holding plastics, wood, even metal for welding. Arvids Iraids, 5930 Argus Rd., Cincinnati 24, Ohio.

Do-It-Yourself Bronzing

BRONZE-PLATE your baby's first pair of shoes with this kit. Money-back guarantee, $1, from Bronzecraft Co., Greenville Sta., Jersey City, N. J.

Fishing-Spot Marker

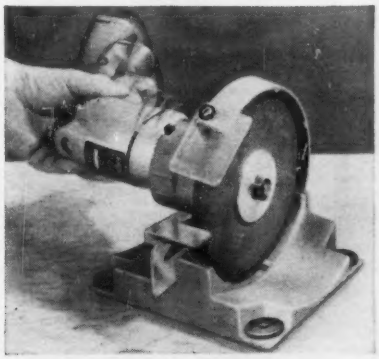


WHEN YOU CATCH a fish, drop this marker over the side to mark the spot; colored segments of the line indicate the depth of water. If your boat drifts, you can move back to the marker to find the school. $2.95, Vernon Brown Co., 20 N. Wacker Drive, Chicago 6.

Transistor-Radio Aid

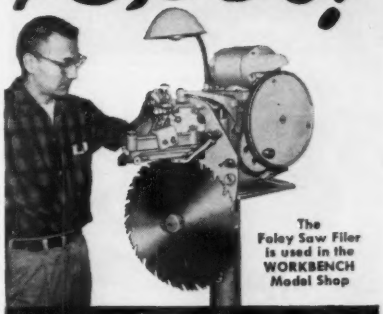
RECHARGEABLE BATTERY and plug-in charger give better than 100 times more playing hours than dry cells in transistor radios. Directly interchangeable with miniature 9-volt dry cells generally used. Charger and battery $4.95 from B&K Manufacturing Co., 1801 W. Belle Plaine Ave., Chicago 13, Ill.

Drill Powers Grinder



LATEST IN LINE of Snap-Lock tools is this 6-in. bench grinder that uses any standard ½ x ½ x 6-in. grinding, wire brush or buffing wheel. Retails at $16.95, without drill motor, from Skil Corp., 5033 Elston Ave., Chicago

Last Year's Profit $3,000!



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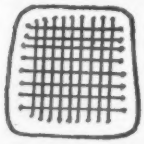

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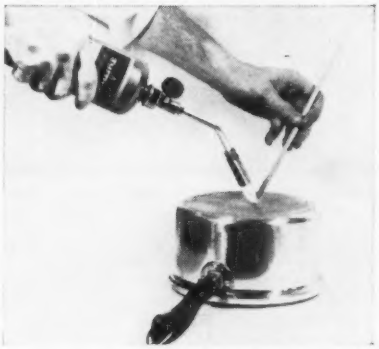
Craft and Home Products

All-Purpose Solder Kit



PROPANE TORCH, replaceable tank that holds 10 per cent more fuel, chisel-point soldering tip, bar of 50-50 lead solder, bar of aluminum solder and can of flux are included in this kit. Solder-All Torch Kit, where Turner torches are sold, $8.95, replacement tanks, $1.95.

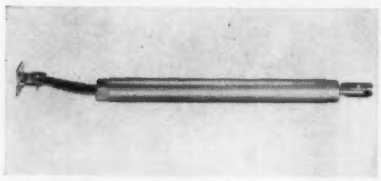
Hardboard Sliding Doors

TIPS ON making and installing sliding hardboard doors are available in free, illustrated plan by sending a postcard to Home Service Bureau, Suite 2037, 111 W. Washington St., Chicago 2. Plan No. AD-239.

Make Your Own Leaded-Glass Windows

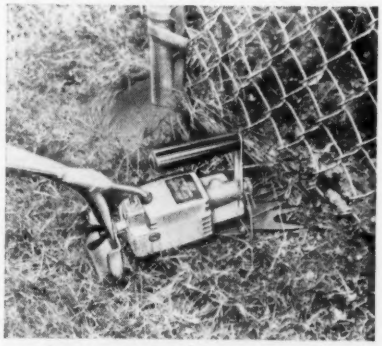
PLAIN GLASS windows can be changed into "leaded panes" by use of lead-foil strips 1/16 in. thick and ¼ in. wide. Pressure-sensitive adhesive on strips permits them to be used both inside and outside windows. Available in 18-yd. rolls, sufficient for two windows using average design, cost is $6.95, Pen-Mac-Nye Co., 1056 Home Ave., Akron 10, Ohio.

Hydraulic Door Closer



NO AIR is used in this door closer, designed for jalousie and Hollywood-type doors. Filled and sealed with hydraulic fluid, the Glidraulic needs no adjustment for seasons, guaranteed for 15 years. $5.95, Illinois Lock Co., 800 S. Ada St., Chicago 7, Ill.

Shrub and Grass Shear



TRIMMING GRASS under fences and next to walls is no problem with this electric shear. It also is ideal for shaping shrubs and evergreens. Roller handle available for stand-up operation. Shear is $39.95, handle $5.00. Skil Corp., 5033 Elston Ave., Chicago 30.

Adjustable Shower Unit

SHOWER HEAD adjusts for height of user, sliding up and down in fixture. Flush mounted for original installation, surface mounting for the do-it-yourselfer. For information, write Vari-Height, Bickford Mfg. Co., 2116 Lone Oak Ave., Napa, Calif.

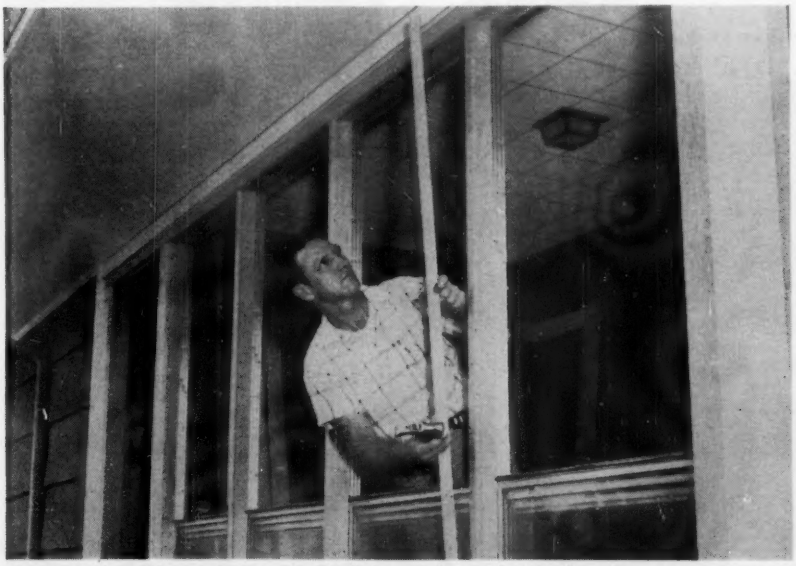
Enclose a Porch with Prefabs

THAT PORCH you want to enclose; have you hesitated because of the problems of building the framing, fitting glass panels and other time-consuming details? Prefab glass-wall units are your answer. Called GlassWalls, the units can be nailed together where no roof supports are needed, or directly to supports where necessary. Each unit has 3 glass panels that slide in full-length channels, and each is fitted with a full-length fiber glass screen. The latter is removable, as are the individual panes, assuring easy cleaning and maintenance. Two standard lengths, 69¼ and 81¼ in., are available in eight widths from 25⅜ to 39⅜ in. in 2-in. increments.

To figure how many of the units you need, measure your porch openings, allowing an extra ½ in. for each opening. The latter takes care of any irregularities, such as out-of-plumb walls or supports. Divide the distance so that the widest possible windows can be used to assure a modern, glass-wall look. Combinations of windows of different widths can be used to fit a space that is not an exact multiple of a particular width. Where two windows are not quite wide enough, a filler strip can be used between them, then covered with a trim board. When figuring window height, allow a minimum of 2 in. for the window sill below. The difference can be made up in the short wall above the windows, that will be necessary in most installations anyway.

Installing the prefab window units is as simple as driving a nail. Units are nailed to supporting members and to each other.

GlassWalls provide not just windows, but walls of glass. You can save time, you can save labor costs by installing them yourself. For further information, contact the DeVac Co. directly. △ △



Homeowner is working on last step in installation, getting ready to nail on face trim to cover joint between two GlassWall units that have been nailed together. Matching prefab door unit will be fitted in opening at end of porch.

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Build-It-Yourself

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DeVAC Glass-Walls

Here's a new, practical way to remodel your summer porch, or build from the ground up, with DeVAC GlassWalls. In just a matter of a few hours your porch becomes a beautiful, sun-drenched extra room for year 'round livability.

Unique modular construction of DeVAC GlassWalls permits rapid installation with only the normal carpenter's tools. As a result, the final cost of building a GlassWall room is less per square foot than most other construction methods.

And DeVAC's exclusive 3-way directional control ventilation lets you convert your new room to meet the whims of weather — winter or summer.

BEFORE: Summer porch, wide open to cold, wind, rain and snow. Porch furniture must be moved in and out according to the weather. The porch is usable only a few days a year. The rest of the time it's just so much wasted space.

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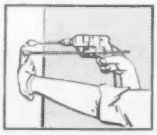

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1. As is too often the case, this family room off the kitchen has blank, cheerless walls that make room seem small and uninviting.

"BRICK-VENEERING" an interior wall takes only minutes with pre-pasted Decro-Wall, a vinyl-plastic material formed in a 3-dimensional replica of real bricks. White was used in the room illustrated, and the color is so true that other colors in the room are highlighted by it. Other colors of bricks, as well as various stone shapes also are available to suit every decorating situation. Not even

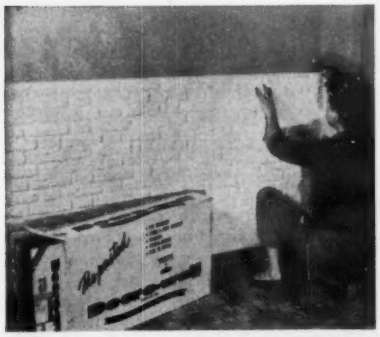
2. First step in redecoration of room was to apply coat of light-color paint on upper portions of walls, then Decro-Wall was applied around lower portions of walls. Depth and character is added to wall by 3-dimensional pattern of material.

Family-Room *Face Lifting*

3. Pre-pasted vinyl material simply is pressed against wall, contact adhesive fixes it firmly in place. Perforated "mortar lines" permit quick removal of half-bricks so one sheet fits neatly into next for realistic brick-wall look.

adhesive is required with the prepasted sheets; simply peeling off the protective paper on the backs of the panels exposes a contact adhesive that sticks immediately when the panels are pressed firmly against a smooth surface. For a truly dramatic effect, one wall of a room can be covered from floor to ceiling. Or, just part way, as illustrated. △ △

4. To apply material, protective sheet is peeled off to expose contact adhesive, then sheets are pressed firmly against the wall.



5. Fitting around a corner, vinyl material is creased, then bent at right angle. Not easily soiled, vinyl cleans with soap and water.

6. To fit against door frames and the like, material can be cut with scissors. Slight irregularities were trimmed with razor blade.

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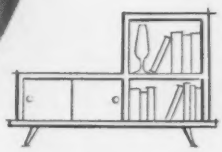

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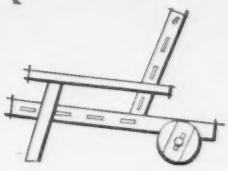
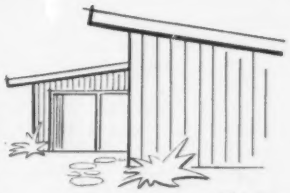


Rez Color-Tones will give the exterior of your house that distinctive, colorful "Natural Wood" finish. Rez will not crack or peel. The color is IN the wood.



For name of nearest dealer, consult the YELLOW PAGES.

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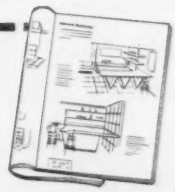

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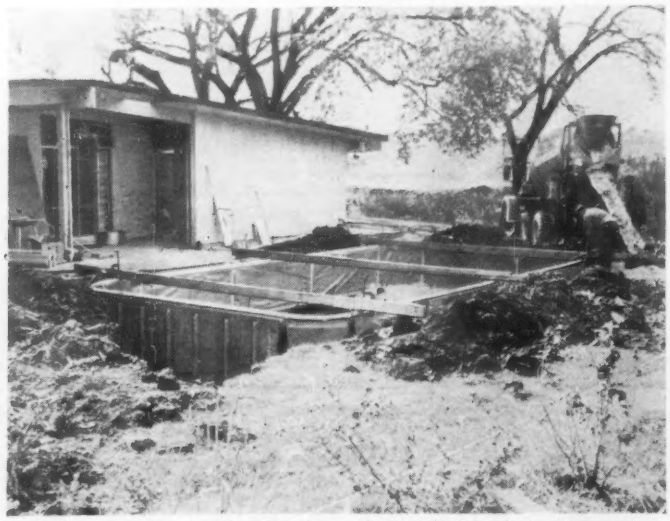
Back Yard Swimming Pools

1. SWIM QUEEN pool has rounded aluminum coping that ties in with concrete patio so upper edge is smooth, attractive.

IN RECENT YEARS new materials, and new techniques for applying older materials, have brought the price of swimming pools within the budget of almost every family. No more expensive than a second car, nor a lake cottage that may require hours of driving to reach, a back yard pool can provide almost year-around pleasure. All summer—part of spring and fall, too, if the pool is heated—there is the healthful fun of swimming. In winter many types of swimming pools can be used for ice skating. (Swimming pools no longer are emptied during winter, the weight of the water assuring that the pool stays in place. An empty pool actually may pop up out of the ground a foot or two under the pressures of freezing earth or a rising water table.)



2. After excavation is made, fiber glass wall is installed, levelled and clamped to hold shape. Bottom of excavation is shaped, reinforcing mesh is fitted from wall to wall across the bottom.

If you would like a swimming pool, but are not sure that you will live in your present home long enough to get full value from it, the answer is an above-ground pool that can be disassembled and moved. These above-ground pools are not small by any standard. Doughboy, pioneer in the field of this type pool, makes the "Silver Sea," Figs. 6, 9 and 10, that is 22 ft. in diameter and 4 ft. deep. Their "Silver Ocean," Figs. 7 and 8, is 28 ft. in diameter, 4 ft. deep, with an 8-ft.-deep hopper in one portion that permits diving. In Fig. 11 is shown the manner in which the Doughboy pools are assembled, and a cross section of the hopper in the "Silver Ocean." The hopper requires a 4-ft.-deep excavation that is lined with sand to support the vinyl-impregnated nylon liner.

Of similar construction is the "Million-Air" pool, Fig. 19, which is 24 ft. in diameter and 4 ft. deep. This pool is manufactured by the U. S. Fiber and Plastics Corp. The vinyl liners of these above-ground-type pools usually are guaranteed for about five years, and can be expected to last 10 or more years when properly maintained. The liners can be cut or punctured, but are patched easily. Some types of patches even

3. Dry-mix concrete is troweled over steel mesh, forced tightly against lower edges of walls. Skill is required for this job.

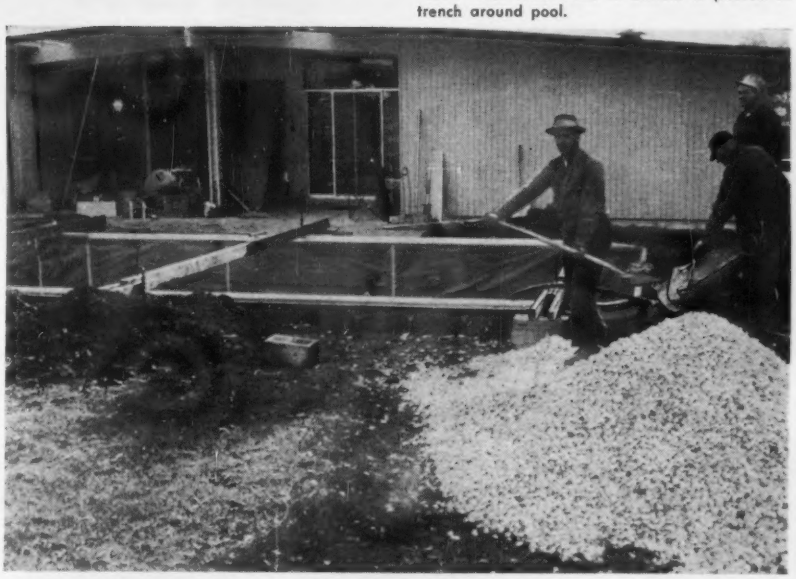
liner is smoothed into place. A finish coping and protection for the liner above the water line is installed, then any desired patio. This is a 16 x 32-ft. pool. A contractor-installed version of the Buster Crabbe pool is called the "instant pool," and is put in the ground, ready in one day.

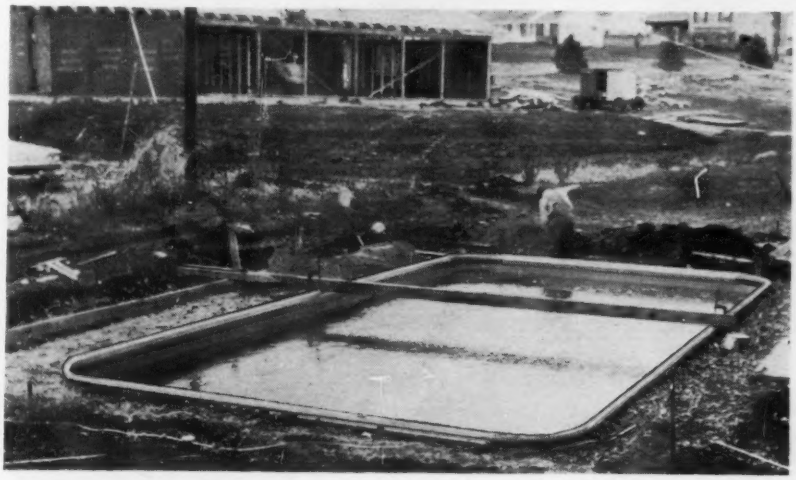
The cover photograph and Figs. 1 through 5 are of the "Swim Queen" pool, a contractor-built type that combines both old and new materials. After the excavation is made a ribbed-fiber-glass wall is installed, Fig. 2. (Protective paper is left on until the pool is completed.) Next, the pool bottom is shaped in the earth and steel mesh is positioned over the bottom. A fairly dry mix of concrete can be applied under water, eliminating the need for draining water from the pool. Almost any accessory available for an in-the-ground pool can be purchased for the above-ground type; ladders, diving boards, lights, etc., as well as platforms on supports that are positioned level with the top edge of the pool. One of the most appealing features of a pool, such as the Doughboy, is the safety factor. When the ladder or platform is moved away, it is almost impossible for a youngster or toddler to get into the pool.

While we have been referring to the "Silver Sea," "Silver Ocean" and "Million-Air" pools as above-ground types, they also can be installed below ground. One interesting method of installation is to cut a shelf into the side of a hill and install the pool so that about half the pool appears to be below ground, the other half above. A patio can be built around the pool and landscaping can further add to the beauty.

If you are a do-it-yourselfer, but would prefer an in-the-ground pool at reasonable cost, the "Buster Crabbe" pool, Figs. 15 and 16, might be your choice. A kit, that includes even a pump and filter, is sold as a package that you can install yourself, or have a contractor put in the ground. The required excavation should be done with power equipment. The rest of the work can be done with the aid of a friend or two who later will be paid with swimming time. The walls of the pool are specially treated redwood, the bottom of the pool is shaped according to a drawing, then a vinyl liner is installed. As the pool is filled, the

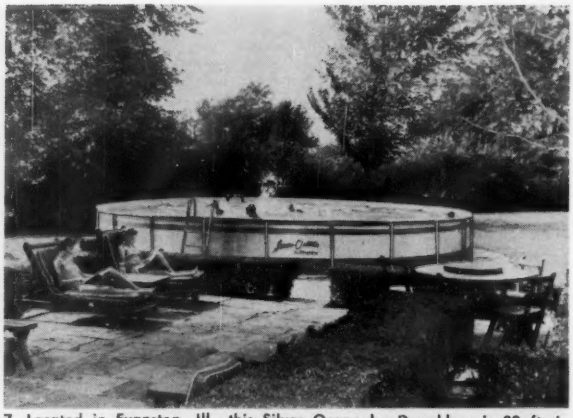
4. While bottom is being finished, concrete "lock" that seals walls to bottom is poured in trench around pool.





5. Sand is used for back fill, providing a cushion for wall, protecting it against pressures due to temperature extremes.

6. SILVER SEA by Doughboy is above-ground pool that can be assembled by members of the family, placed on bed of sand. This pool is 4 ft. deep, measures 22 ft. in diameter, holds over 10,000 gal.



7. Located in Evanston, Ill., this Silver Ocean by Doughboy is 28 ft. in diameter, depth is from 3½ to 8 ft. Capacity is 20,000 gal. Unit, including ladder, weighs 384 lbs. when crated for shipping.

then is hand-troweled over the mesh, as in Fig. 3. While the bottom is being worked on, a concrete "lock" measuring 1 x 1 ft. is poured in the trench around the outside of the pool to seal the joint between the concrete bottom and the fiber glass sidewall, Fig. 4. When the lock has set, sand is back filled around the pool and the ground rough-graded in preparation for installing a patio, Fig. 5. A curved aluminum coping bolted to the top edge of the wall is shaped to form a "key" into which the concrete of the patio will lock and form a smooth edge for the pool.

If fiber glass intrigues you, the "Lancer" swimming pool, Fig. 17, might be your choice. These are one-piece units molded of reinforced fiber glass. The manufacturer states definitely that these are not do-it-yourself pools, because the large size of the units make them extremely difficult to handle and to install properly. "Fabulous Fiberglass" swimming pools, Figs. 12, 13 and 14, by Chance and Associates have been owner-installed in many instances, and quite successfully. These pools are available in a variety of sizes and consist of sections that are bolted together with the joints sealed with fiber glass cloth and resin. While these pools

8. Because of 8-ft.-deep hopper in Silver Ocean, a diving board can be used. Hopper requires 4-ft.-deep excavation, but most of pool is placed above ground. High sides of pool are safety factor, keep toddlers out of water.

9. Because pool is readily disassembled and stored away, no elaborate patio is required.

10. Home may be modest, but the pool is luxurious, and just a few steps away.

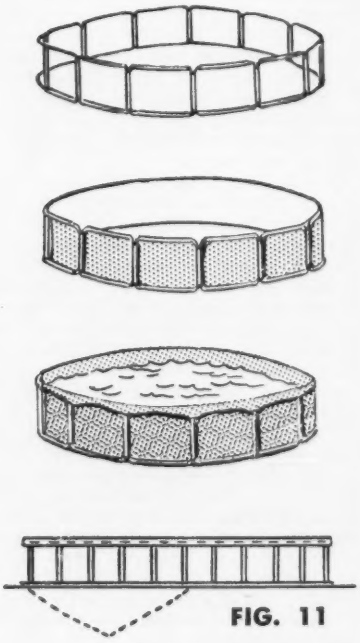
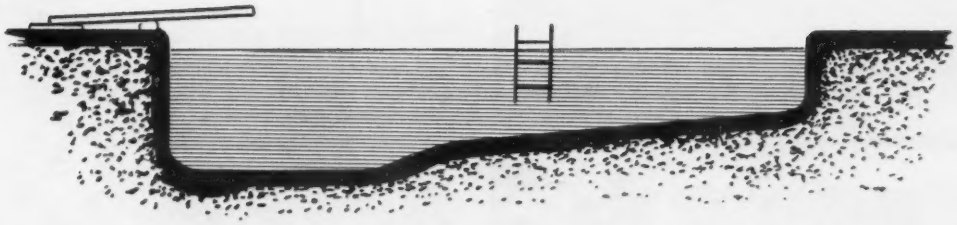
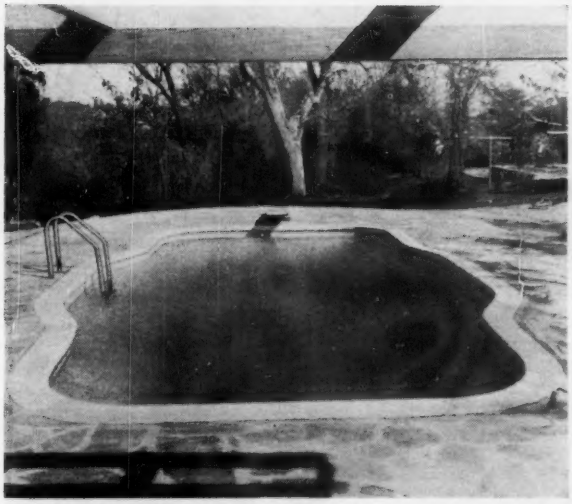


FIG. 11

FIG. 12





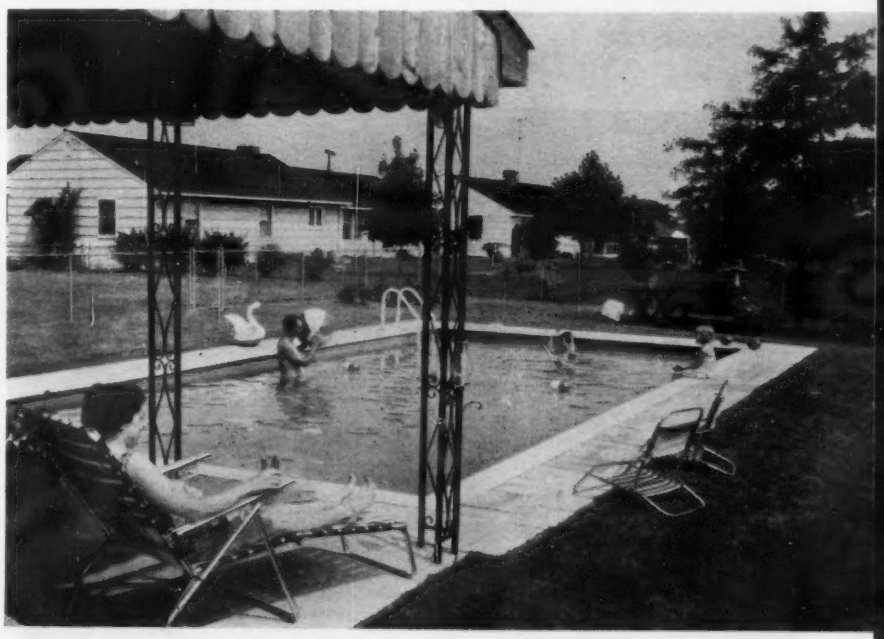
13. FABULOUS FIBERGLASS pool by Chance and Associates is assembled from several molded sections. Homeowner can install it himself if he is extremely careful and follows instructions.

14. Another view of Chance and Associates pool shows how patio is extended to reach converted stable used as bathhouse, it also runs around up to house that is in foreground.

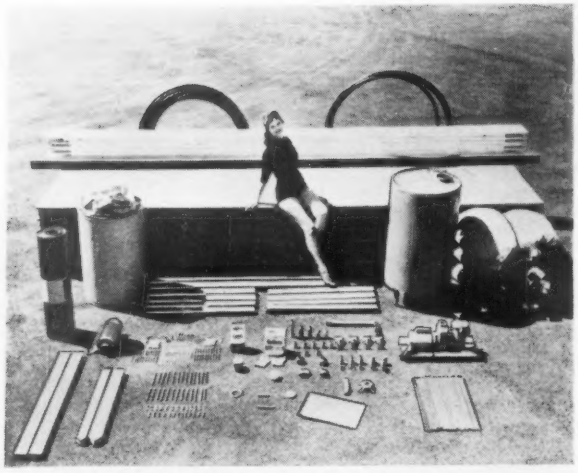
have been successfully installed by homeowners, it must be emphasized that the job requires patience and time. Manufacturer's instructions must be followed absolutely and the pool shell must be leveled and supported as specified. Improper installation could mean a complete failure, or, at the least, a pool that appeared constantly to be tipping, because the water line and top of the pool are not parallel. Fiber glass, along with vinyl, has a smooth surface that is cleaned easily and on which algae does not readily cling.

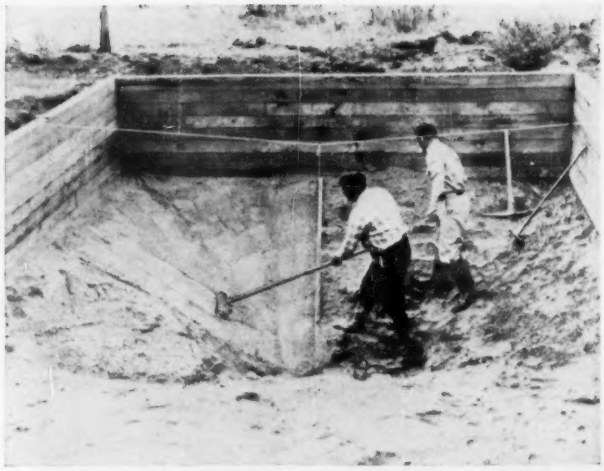
Another contractor-built pool is the "Blue-Lake" by Landon of California, Fig. 20. On the West Coast, Landon builds the pools, in other areas, franchised dealers handle pool installations. Depending on the location, type of soil, etc., the Landon pool may be poured concrete, "gunite" (concrete is sprayed from large guns over steel mesh that is fitted in an excavation shaped to suit) or a combination of the two. Usually, in the latter case, the floor is poured concrete and the walls are gunited. The advantages of gunite are that no forms are needed, an excavation is shaped to suit, steel mesh is installed, then the concrete is sprayed on to the proper thickness and it is troweled smooth. Generally, after the gunite has set, a smooth plaster coat is applied over the concrete.

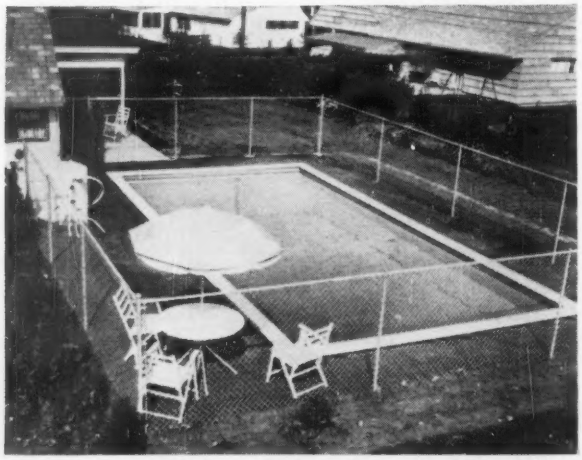
Still another method of construc-

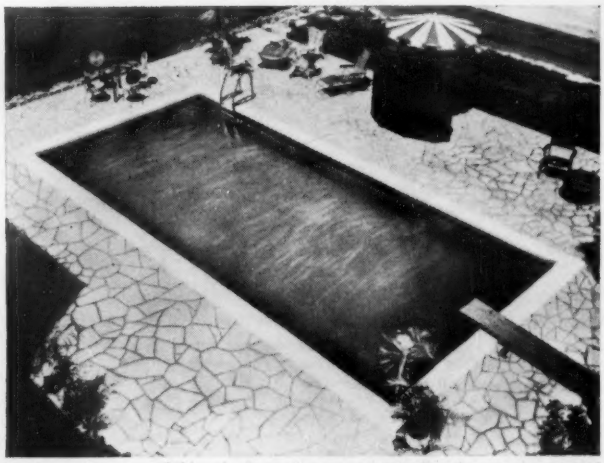


15. BUSTER CRABBE pool by Cascade Company brings your vacation into the back yard, keeps it there all summer long.









16. Kit containing 3,000 lbs. of equipment for complete Buster Crabbe pool is shown in upper, lefthand photo. Upper right, walls of treated redwood are in place, pool bottom is covered with sand being shaped to accept vinyl liner. Bottom photographs show two completed pools, each one given an entirely different landscaping treatment.

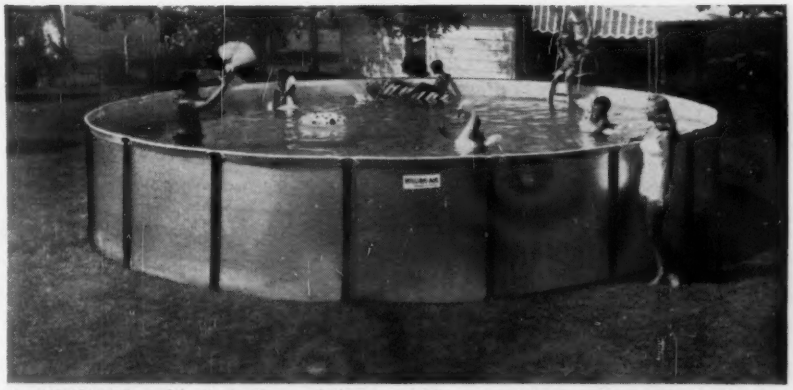
17. LANCER pool is one-piece fiberglass shell, definitely is not an installation job for a do-it-yourselfer. Fiberglass is fairly new material for swimming pools, has smooth, easily cleaned surface.

tion is represented by the contractor-installed "National" pool, Figs. 21 through 25. After the excavation is dug, the pool bottom is shaped and covered with steel mesh, Fig. 22. Forms for the wall footings are set up at the same time, and floor and footing are poured and finished simultaneously, Fig. 23. Steel reinforcing rods are allowed to project up from the footing and mortarless concrete blocks then are stacked up on the footings around the rods, Fig. 24. When the blocks are stacked the full height of the pool wall, nuts and plates are fitted over the threaded steel reinforcing rods and tightened down to "pre-stress" the wall, Fig. 25. The wall cavity then is poured full of concrete. When it has set, the nuts and clamping plates are removed and the rods bent down to tie in with the poured-concrete patio around the pool to assure maximum strength.

With any swimming pool, a filter is an absolute necessity to keep the

18. Junior-size swimming pool by U. S. Fiber and Plastics Corp. is large enough for Mom and Dad to take an occasional splash. Pool has a vinyl liner that is supported on corrugated-aluminum wall. While it is deep enough for toddlers to learn to swim, pool still is shallow enough so that youngsters can quickly be fished out when in trouble.

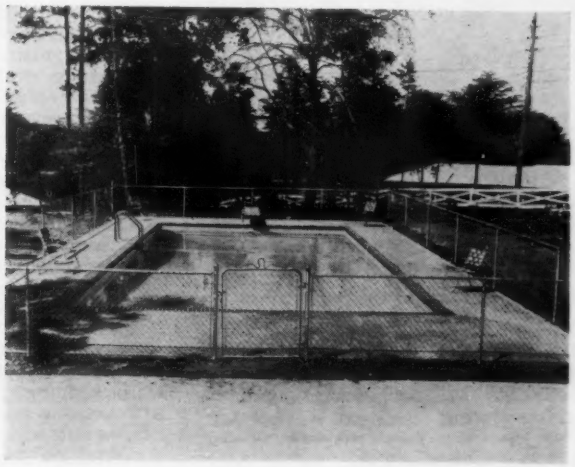
water clean and sanitary. Water flows through the main drain in a pool, is pumped into a filter, then discharged back into the pool. A skim filter is positioned so that dirt and debris on the surface of the water is skimmed off, while the water also is sent through the main filter. A pool vacuum is necessary to remove dirt and debris from the pool bottom. Chlorine must be added to the pool water on a regular schedule, and the water must be tested for pH factor before this is done. If the water is too acid, the chlorine is neutralized and does no good. Kits for testing the pH factor, and the percentage of residual chlorine (the amount remaining in the water to purify it) are available. Safety is important, and every pool should be fenced in to

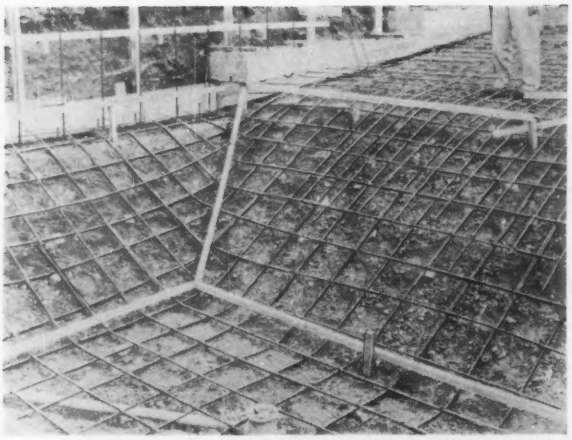


19. MILLION-AIR pool by U. S. Fiber and Plastics is 24 ft. across, 4 ft. deep. It, too, can be disassembled and stored away in small space during winter.

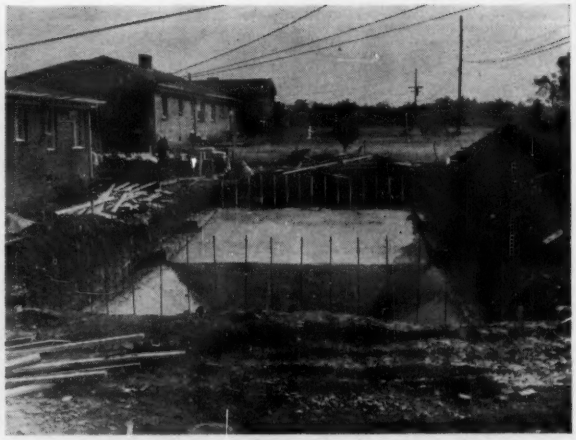
20 BLUE-LAKE pool by London of California can be almost any size or shape. Poured concrete, gunite, or combination of the two may be used.

21. NATIONAL pool is contractor-installed, uses walls made of prestressed concrete and blocks, is rectangular in shape.

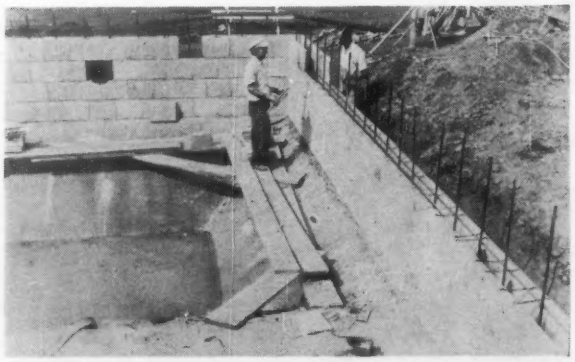




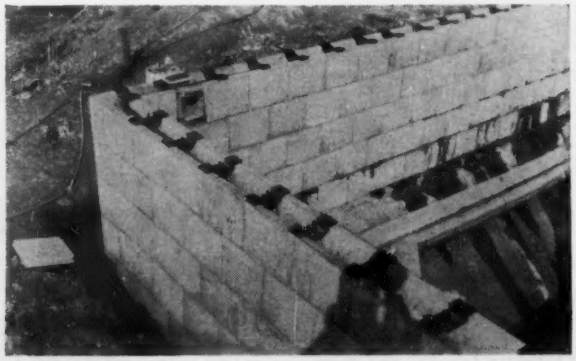
22. Bottom is shaped, plumbing roughed in, reinforcing steel and forms for wall footings are built. Footings and bottom are poured at same time. Reinforcing of bottom runs into footings.



23. After bottom and footings are poured, bottom is troweled to smooth surface. Here footing forms have been removed, pool is ready for stacking of concrete blocks used for the walls.



24. Mortarless blocks are stacked, reinforcing steel installed between the rows of block. Note that nuts are on ends of threaded reinforcing rods projecting up from stacked blocks of walls.



25. Clamping plates are fitted on top of wall, nuts turned on rods to place blocks under stress. Concrete now is poured in cavity between rows of block. Plates and nuts are removed later.

prevent outside youngsters from falling in or using the pool when no adults are around. A pool alarm, such as the Minneapolis-Honeywell unit,

26. MINNEAPOLIS-HONEYWELL electronic pool alarm has sensing device under water, warning horn on pool edge.

Fig. 26, is ideal to help you watch your own toddlers. Any object entering the water causes a pressure on the sending unit at the bottom of the pool and an alarm sounds. Along with safety, health is important. "Swimming-Pool Granuloma" is the name given infections that occur in skin abrasions resulting from contact with rough surfaces of a swimming pool. Organisms in the pool water and on the surfaces of the walls of the pool cause the infections. No specific prevention of the infections has been determined, so maintaining smooth, non-abrasive surfaces in a pool seems to be the best method of avoiding the problem.

Having your own pool is fun, but does entail monthly expenses for maintenance, requires that you carry liability insurance and your friends may drive you crazy wanting to use it all the time. It is necessary to set up rules and schedules so that you and your family can have fun, while keeping friends and neighbors in courteous restraint. But for sheer fun, health and a way of keeping fit a swimming pool is hard to beat.

SWIM QUEEN POOL, Swim Queen Pool Co., 300 Waukegan Rd., Glenview, Ill.

SILVER SEA, SILVER OCEAN, Doughboy Industries, Inc., 922 Flour Exchange, Minneapolis 15, Minn.

FABULOUS FIBERGLASS, Chance and Assoc., Inc., Waldorf Industrial Center, P.O. Box 306, Waldorf, Md.

BUSTER CRABBE POOL, Cascade Pool Co., Trenton, N. J.

LANCER SWIMMING POOL, Lancer Pools Corp., 22 Jericho Turnpike, Mineola, Long Island, N. Y.

MILLION-AIR, U. S. Fiber and Plastics Corp., Union St., Stirling, N. J.

BLUE-LAKE POOLS, Landon of California, 7240 Fulton Ave., North Hollywood, Calif.

NATIONAL POOLS, National Pool Equip. Co., Lee Highway, Florence, Ala.

POOL ALARM, Minneapolis-Honeywell Regulator Co., 2747 Fourth Ave., Minneapolis 8, Minn. △ △

FLORIDA ROOM

TAKING A TIP from that sunny state, many a homeowner is making a breezeway between house and garage into a Florida room. A southern cousin to the Northerner's rumpus or recreation room, the Florida room tends to have more openness with large glass areas. Decor is informal with fireplaces that double as barbecues and heating plants. As with a rumpus room, ease of maintenance is a prime factor, and floor and wall coverings should be materials that clean with a minimum of time and labor. Locating a Florida room adjacent to the kitchen is ideal, for more complex dishes can be prepared there to serve in the informality of the "outdoor" room. △ △

Decor of a Florida room is informal with an open-to-the-outdoors feeling. No matter the climate, the atmosphere should be of the warm, sunny southern states.
Photo courtesy Armstrong Cork Co.

A Luxury Pool by Swim Queen

RIGHT IN YOUR OWN BACK YARD... FOR YEAR-AROUND FAMILY FUN... AT A PRICE YOU CAN AFFORD

Swim Queen Pools are a sound investment for American families to whom *home* means everything. Right in your own back yard . . . installation time only 3 or 4 days . . . you can have your own vacationland: a luxury pool for family and friends in Summer; a skating rink in Winter because pool water does not have to be removed.

Swim Queen Pools are made of Fibercrete...unaffected by weather or time . . . never need caulking . . . and the impregnated color is built right in! A variety of shapes and sizes is available. Guaranteed *five* years. Installed by reliable Swim Queen pool contractors at prices that will amaze you. Make a Swim Queen Pool your next home project!

For name of nearest dealer and literature, write or call:

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SWIM QUEEN POOL COMPANY, INC.

300 WAUKEGAN ROAD • GLENVIEW 8, ILLINOIS • PARK 4-1240

gravel and the wooden cover is placed over it. Should you wish to leave the lights out in all kinds of weather, however, it is recommended that waterproof wiring, receptacles and lamps be used. A short extension then can be run from each light to be connected to a heavy-duty extension cord or outside receptacle.

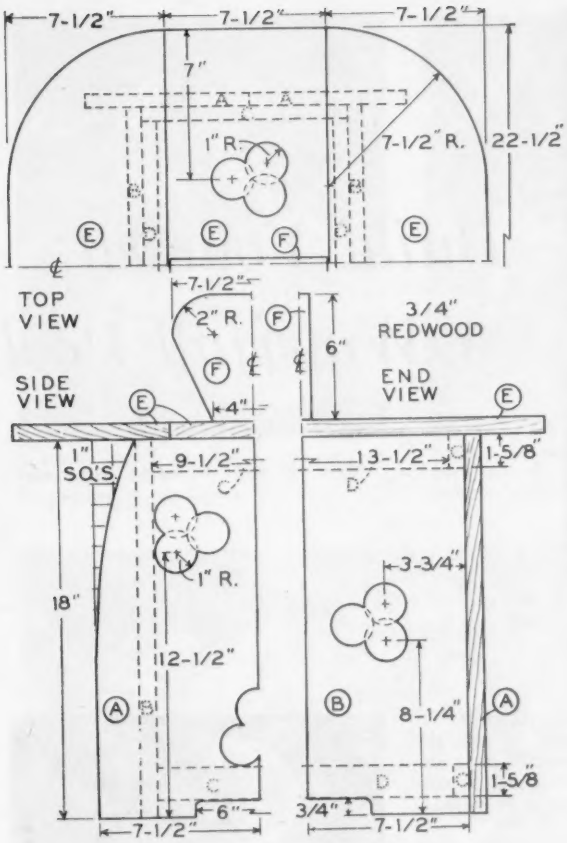
After making the full-size patterns, trace the parts on the wood and cut them out. Cleat together the side and end boards, then join these units together, using roundhead brass screws. Pieces for the top are joined with corrugated fasteners, then the top is screwed to the top edges of the light box with screws. To attach the handle, drive screws through the top from underneath. Here again you might want to change the design. The lights are handy informal seats if the handles are not used. For the same reason, you may want to eliminate the cutouts in the top of each light. The lights are large enough so there should be no problem of overheating from the lamps. △ △

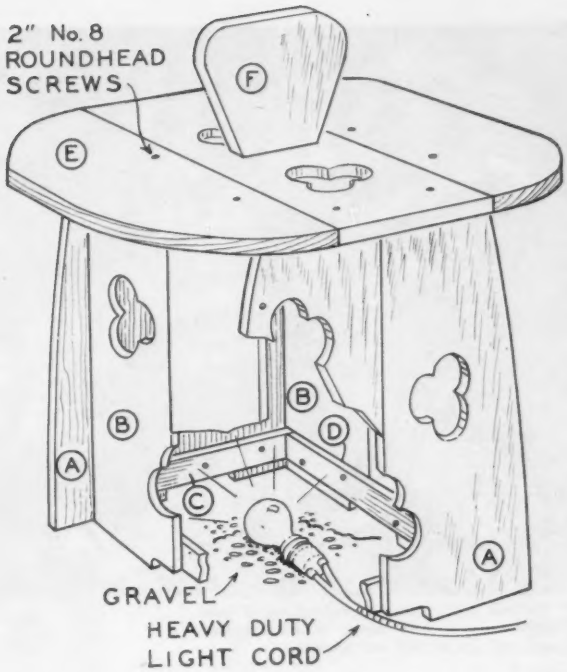
Unique Garden Lights

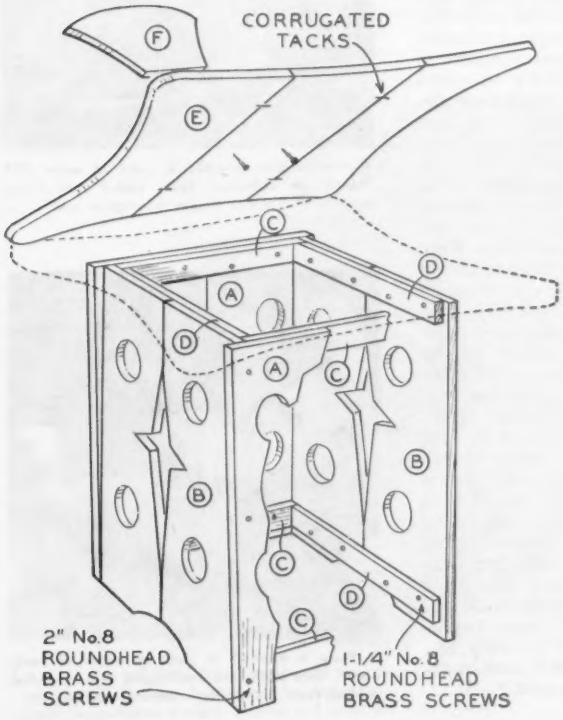
ROBERTA L. FAIRALL

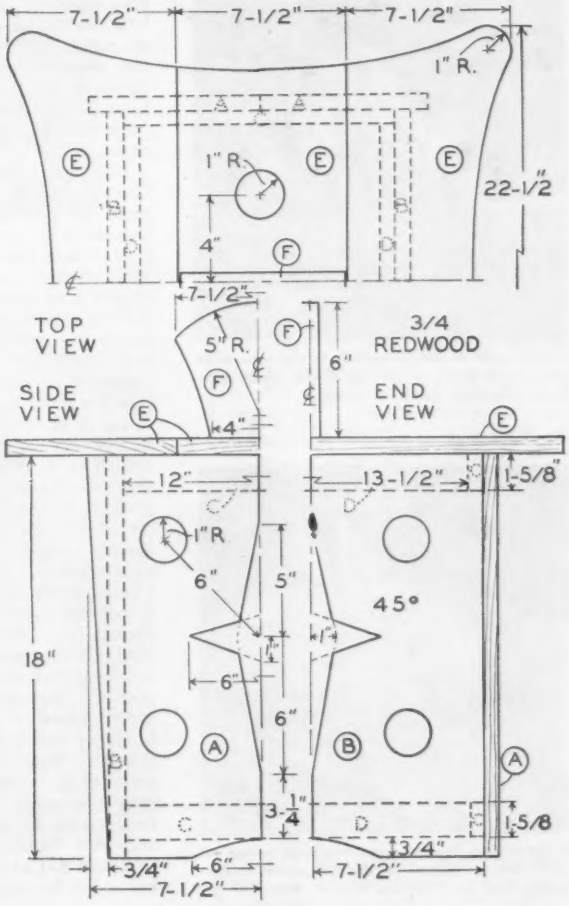
SPARKLING IN THE DARK like the miniature homes of druids or fairies, these lights will lend enchantment to any yard or garden. They can be placed to light a path, to illuminate special plant groups or to provide a soft touch of light on a patio. Heartwood redwood stock is recommended for the lights, as this wood is highly weather-resistant. Other types of lumber can be used if treated with wood preservative.

To begin the project, first make full-size patterns, using the dimensions shown. You may want to make several of both of the two styles shown, or perhaps one style will appeal to you more than the other. Also keep in mind that the shapes of the cutouts can be changed to suit any individual taste. In the latter case you might want to make several of the lights, each with a different style of cutout. No wiring is required for the lights as originally designed, each being illuminated by means of a heavy-duty extension cord. The bare bulb is placed on a bed of dry


7-1/2"
7-1/2"
7-1/2"
7"
1" R.
7-1/2" R.
22-1/2"
TOP VIEW
7-1/2"
2" R.
3/4" REDWOOD
6"
SIDE VIEW
END VIEW
4"
1" SQ'S.
9-1/2"
13-1/2"
1-5/8"
1" R.
3-3/4"
18"
12-1/2"
8-1/4"
1-5/8"
6"
3/4"
7-1/2"
7-1/2"


2" No. 8 ROUNDHEAD SCREWS
GRAVEL
HEAVY DUTY LIGHT CORD


CORRUGATED TACKS
2" No.8 ROUNDHEAD BRASS SCREWS
1-1/4" No. 8 ROUNDHEAD BRASS SCREWS


7-1/2"
7-1/2"
7-1/2"
1" R.
1" R.
22-1/2"
4"
7-1/2"
TOP VIEW
5" R.
3/4 REDWOOD
6"
SIDE VIEW
END VIEW
4"
12"
13-1/2"
1-5/8"
1" R.
6"
5"
45°
18"
6"
6"
3-1/4"
1-5/8
3/4"
3/4"
6"
7-1/2"
7-1/2"

1. Finished pool looks as natural as a spot hidden away in some corner of an unspoiled forest, and just as cool and relaxing.

Build Yourself A Waterfall Pool

Photos courtesy Taylor and Art, Inc., Plastics

2. First step in making pool is to dig excavation and install drain, connecting it with plastic pipe to gravity-drain back to pump.

3. Excavation is coated with several inches of sand that is shaped to desired contours. Projecting clay pipe contains shut-off valve.

ADDING A WATERFALL with its musical splashing to your yard or garden brings the beauty of sound, as well as sight, to your landscaping. When the waterfall drops into a pool that appears to have been lifted intact from some corner of a forest you have an area that creates a relaxing mood night or day.

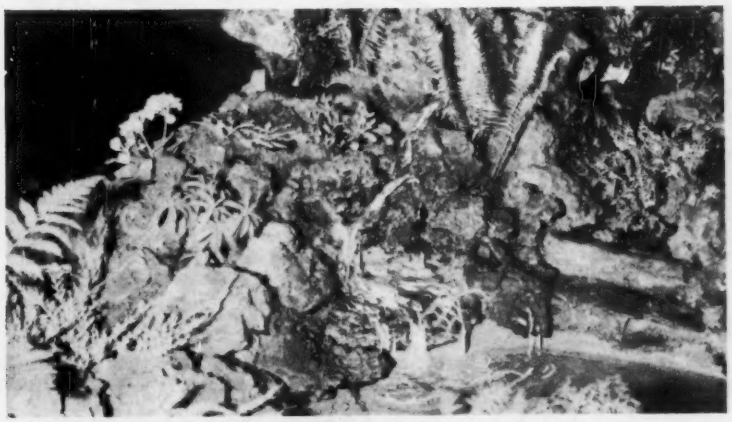
Bill Jory, landscape architect of Castro Valley, Calif., designed and built the pool and waterfall shown in this article. You can build a similar pool, using rocks and plants native to your region, rather than the lava stones and California plants used for the original. Fiber-glass cloth and resin are used to make a watertight pool shell, and to bind the stones together for the waterfall. The clay tile projecting from the pool houses a water shut-off valve, and could not be moved, so the cloth and resin were sealed to it. A fern was used to shield the tile from view in the finished pool. Not visible is the pump that recirculates the water, making it necessary to add only the water lost by evaporation. Recommended are pumps such as the one shown in Fig. 9, manufactured by the Little Giant Pump Co., 3810 N. Tulsa, P.O. Box 9545, Oklahoma City 18, Okla. If fish are kept in the pool, the water can be pumped through a filter before it is recirculated. If you wish to use rocks to cover the bottom of the pool, they must be forced firmly into the still-wet resin when applying the cloth over the sand. Fiber-glass cloth and resins can be obtained from Taylor and Art Plastics, 1710 E. 12th St., Oakland 6, Calif., who will soon market a kit for building a pool. △ △

4. Analine-blue powder is used to color TAP Thixotropic Polyester Resin rolled into 12-in. squares of 1½ oz. weight fiber-glass mat.

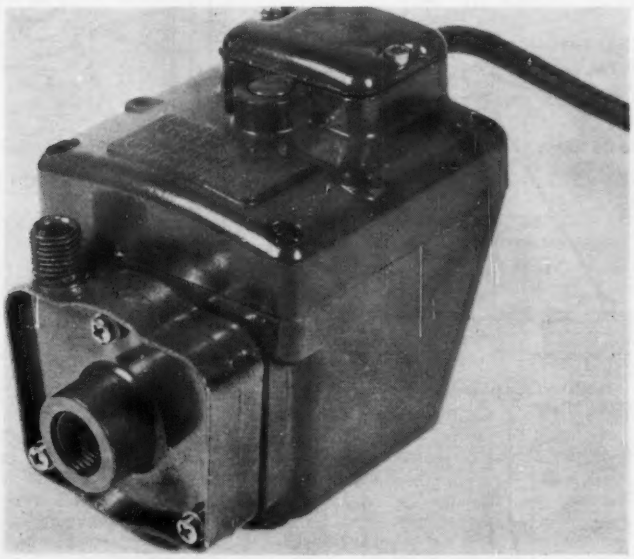
5. Resin is applied to cloth on sheet of hardboard, then cloths are overlapped 1 in. on sand. Added resin blends laps, smooths surface.

6. White sand is sprinkled on still-wet resin, then rocks are placed around pool edge, to provide natural appearance.

7. Resin and mat are used to bond rocks together to form "natural rock waterfall." Crushed rock was used to color resin dark, natural tone.



8. Closeup of finished waterfall shows its natural appearance. Rock coloring in resin completely disguises appearance of fiber-glass.



9. One type of Little Giant Pump that may be completely or partly submerged to assure constant recirculation of water in pool and waterfall.

2.9 AMP. HEAVY DUTY

1/4" RAM DRILL

with Jacobs Geared Chuck and Key

REG. $39.95—Our Price **14.95** plus 50c pp & hdlg.

A powerful full 2.9 AMP. drill to do every heavy duty job in home, shop or industry. Gives 1/2" capacity in hardwood and 1/4" capacity in steel with a full load speed of 1200 R.P.M. Durable lightweight aluminum housing. Universal, series wound AC-DC motor; heavy duty multiple thrust ball bearings; automatic release trigger switch with locking pin; 6 ft. 2 conductor, UL approved cord and plug. Standard 115 V. AC-DC. Measures 9" in length, weighs 3 1/2 lbs.

29-Piece Chrome Vanadium

DRILL SET

Specially made for speed drilling. In sturdy plastic tool roll. Finest alloy steel drills hardened and precision ground to the sharpest, longest lasting cutting edge obtainable; will easily and cleanly bite through hardwoods, plastics, aluminum, iron and the toughest steels. Unconditionally guaranteed for thousands of drillings. Full jobber length. Sizes by 64ths from 1/16" to 1/2". There are only a limited quantity of these imported German sets available at this low price, so hurry! Now ..... **$6.49** ppd.

Also available with Turned Down Shanks to fit all 1/4" drills. In individual pocket roll ..... **$8.95** ppd.

60-Pc. Set Chrome Vanadium

WIRE GAUGE DRILLS

Top quality German import high test Chrome Vanadium Drills designed for speed drilling through toughest steels, woods, plastic, iron and aluminum. Precision ground long-lasting cutting edges. Guaranteed to give years of satisfaction. A full 60 pc. set. Nos. 1 thru 60. A $14.95 Value. Now Only ..... **$5.40** plus 35c pp. and hdlg.

Same set above available with Huot Metal Index container only ..... **$6.65** plus 35c pp. and hdlg.

Also Available — 20-PC. SET NOS. 61-80 WIRE GAUGE DRILLS **$2.50** ppd.

AMAZING BLOCK & TACKLE

- PORTABLE . . . weighs only 13 ozs., fits in pocket!
- ONE HAND OPERATION . . .
- POWERFUL . . .

LIFTS UP TO 1,000 LBS.

Amazing Work Saver For

- Hunters
- Farmers
- Yachtsmen
- Handymen
- Truck Drivers
- Motorists

Here's an unusual tool, even for us! It's the tiny Midget Babe Block & Tackle. It weighs only 13 oz., yet is so powerful, it lifts up to 1000 lbs. easily! Because of its great strength, small size, complete portability—this block & tackle has many uses. In your car for emergencies, for home, factory, farm . . . for loading heavy articles. For sportsmen: loading deer, boats, etc. For anyone who has to do heavy lifting! Finely engineered throughout, best grade aluminum, steel axles, pre-lubricated for life. Hoists have two lifting slings, at top and bottom, with heavy welded steel rings. Slings can be doubled for extra strength. Complete with 60 ft. nylon cord, 5 to 1 ratio — 1000 lb. test. Carrying bag. Instructions. ..... **$9.95** ppd.

ALSO AVAILABLE — Tiny Babe — Lifts up to 2000 lbs.! With 100 ft. nylon cord, 7-1 ratio, 2000 lb. test —15 oz. wgt. Twice as powerful as $9.95 model—only **$12.95** ppd. 1 year guarantee on both models

A Complete Workshop in ONE Tool!

Geared PLIERENCH

10 to 1 Gear Ratio — 1 Ton Gripping Power

Replaces a multitude of ordinary tools, including complete sets of wrenches such as box, lug, ratchet, "S", pipe, open end, monkey wrenches. It's an internal-external wrench and pipe extractor — grips tubes and pipes from the inside where no outside area is exposed. Expando jaw can act as a jack lifting objects up to 600 lbs. Eliminates need for all types of pliers. Cuts heavy wire. Automatically locks as vise or clamp.

Made of select hand-forged tool steel, Hi-Drize heat treated. 10 to 1 gripping ratio and 100% parallel jaws give Plierench 2000 lbs. of gripping power. Special gear transmission allows instant adjustment to any size or shape. UNCONDITIONALLY GUARANTEED for 5 years. Comes in handy tool pouch.

PLIERENCH WITH UNIVERSAL JAW ..... **$6.98** plus 35c pp. & hdlg.

Plierench Standard Kit with Universal Jaw PLUS Giant Pipe Jaw, Giant Internal-External Jaw, Wire Jaw ..... **$9.98** plus 35c pp. & hdlg.

Plierench Master Kit — Same as Standard Kit PLUS Pipe Jaw and Tube Cutter Set ..... **$13.45** plus 35c pp. & hdlg.

Send check or money order. If COD, fees extra. Money Back Guarantee.

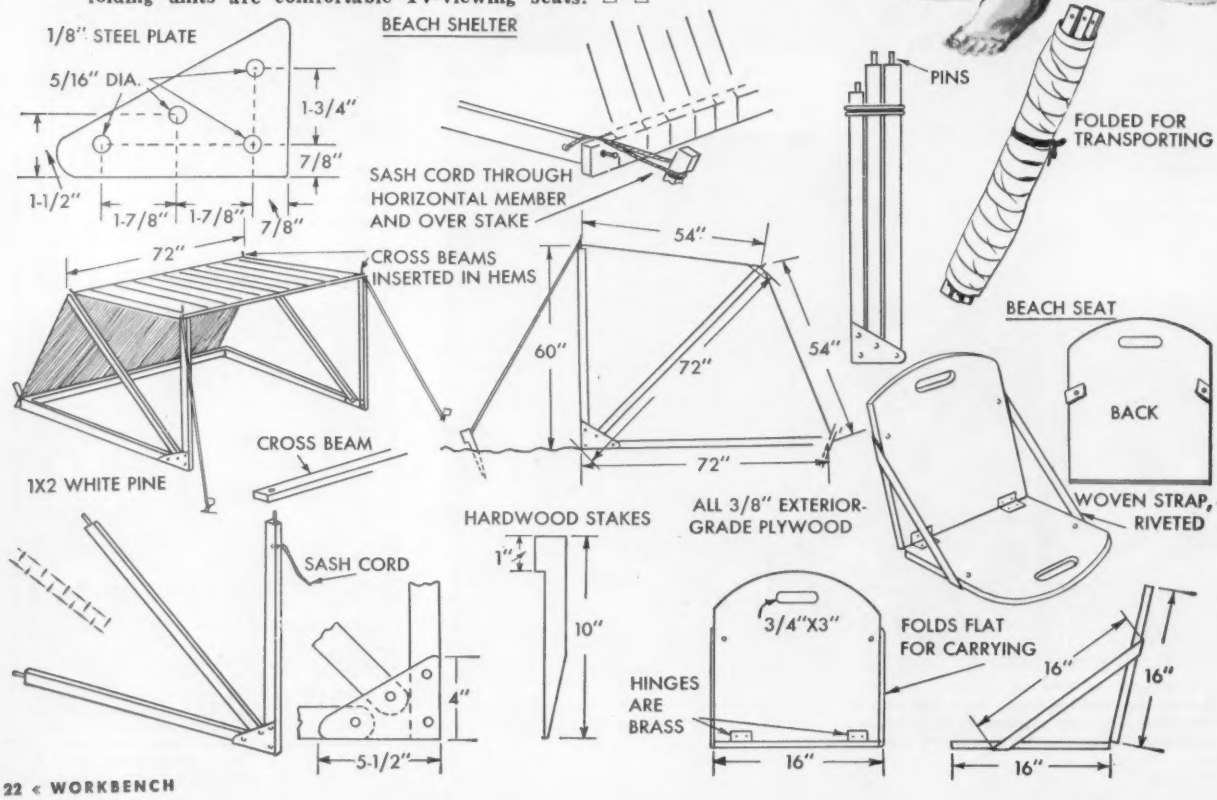
SCOTT MITCHELL HOUSE, INC.

Dept. W-7, 415 South Broadway, Yonkers, N. Y.

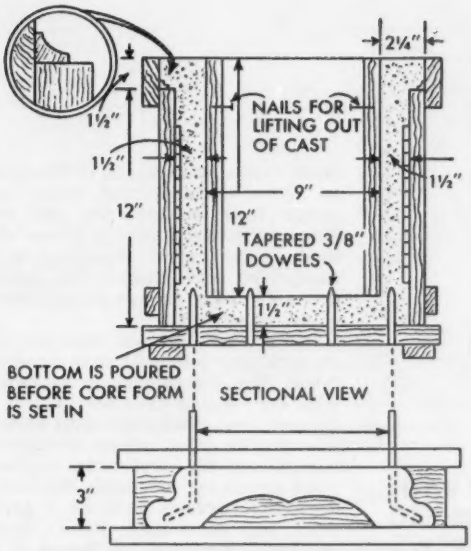
Folding Beach Shelter And Seat

HI SIBLEY

THIS EASY-TO-MAKE beach shelter can be folded into two compact bundles for transporting, and when set up provides generous shelter from sun and wind for several people. The folding seat consists simply of two pieces of plywood hinged together and positioned at right angles, when open, by two canvas straps. The sides of the shelter fold like a buggy top, the members of each side being secured to a steel plate with ¼-in. carriage bolts. A steel pin is set into the upper end of each of the side members, over which is fitted a crossbeam. The beams are slipped into hems in the awning cloth of which the top is made. To disassemble the shelter, the crossbeams are lifted off the pins in the side members, and the top is rolled around the beams and secured with guy ropes used to hold the front cross members upright. The two side members are closed fan-wise and secured with the guy ropes that are used to anchor the rear corners of the shelter to two stakes. Four stakes are required for anchoring the shelter, each stake being L-shape 10 in. long and cut from hardwood. The folding seats are an ideal accessory for the shelter, providing good back support. Exterior-grade ⅜-in. plywood is used for the seats, and the hinges are brass to be weather-resistant. Hand grips cut into the seat members permit easy carrying. Several of the seats should be made and kept in the trunk of the car to be used on picnics and outings, as well as at the beach. When fitted with cushions, the folding units are comfortable TV-viewing seats. △ △

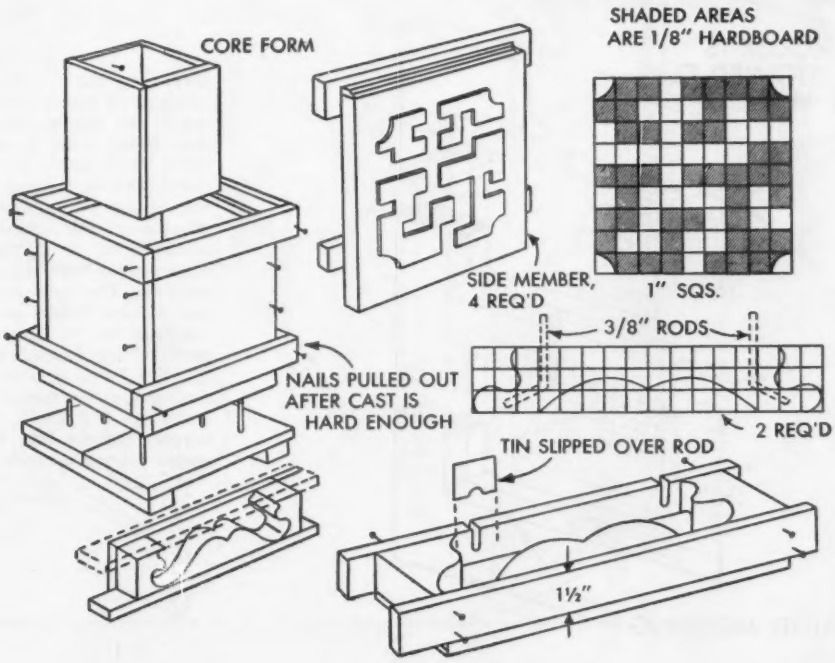


Chinese Planter in Concrete

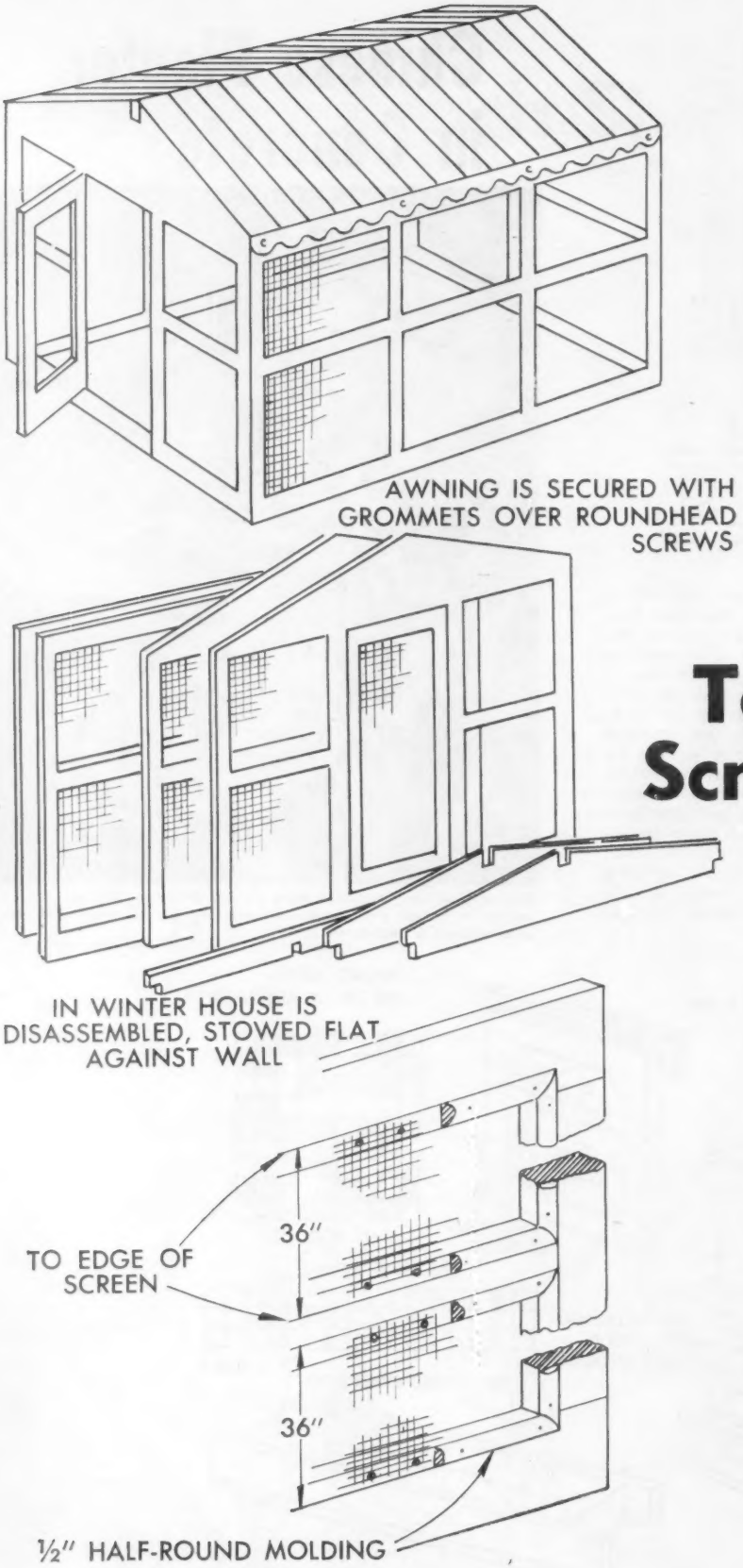


ONCE THE FORM is made, you can cast any number of these attractive oriental-design planters. Material cost is low, and you can make a good profit selling the planters. Sides of the form are secured with scaffold nails (the type with a double head) so the form can be disassembled quickly when the concrete has set. The "Chippendale" motif is formed with pieces of ⅛-in. hardboard cut in the pattern shown on the squared drawing. The patterns are cut four at once with a jig or band saw so they are identical. Note that projecting nails or screws inside the core form permit its easy removal. The concrete mix should be one part Portland cement, two parts sharp, dry sand and two parts small-pea gravel with water to produce a "mushy," not "runny" consistency. Pour the bottom first, tamping well around the tapered dowels. The four center dowels form drain holes, the four corner dowels make holes to receive the rods from the "feet." △ △

Bone-white of concrete makes these planters attractive, but they can be painted or stained, even two-toned. Color also can be mixed with concrete before it is poured into form.

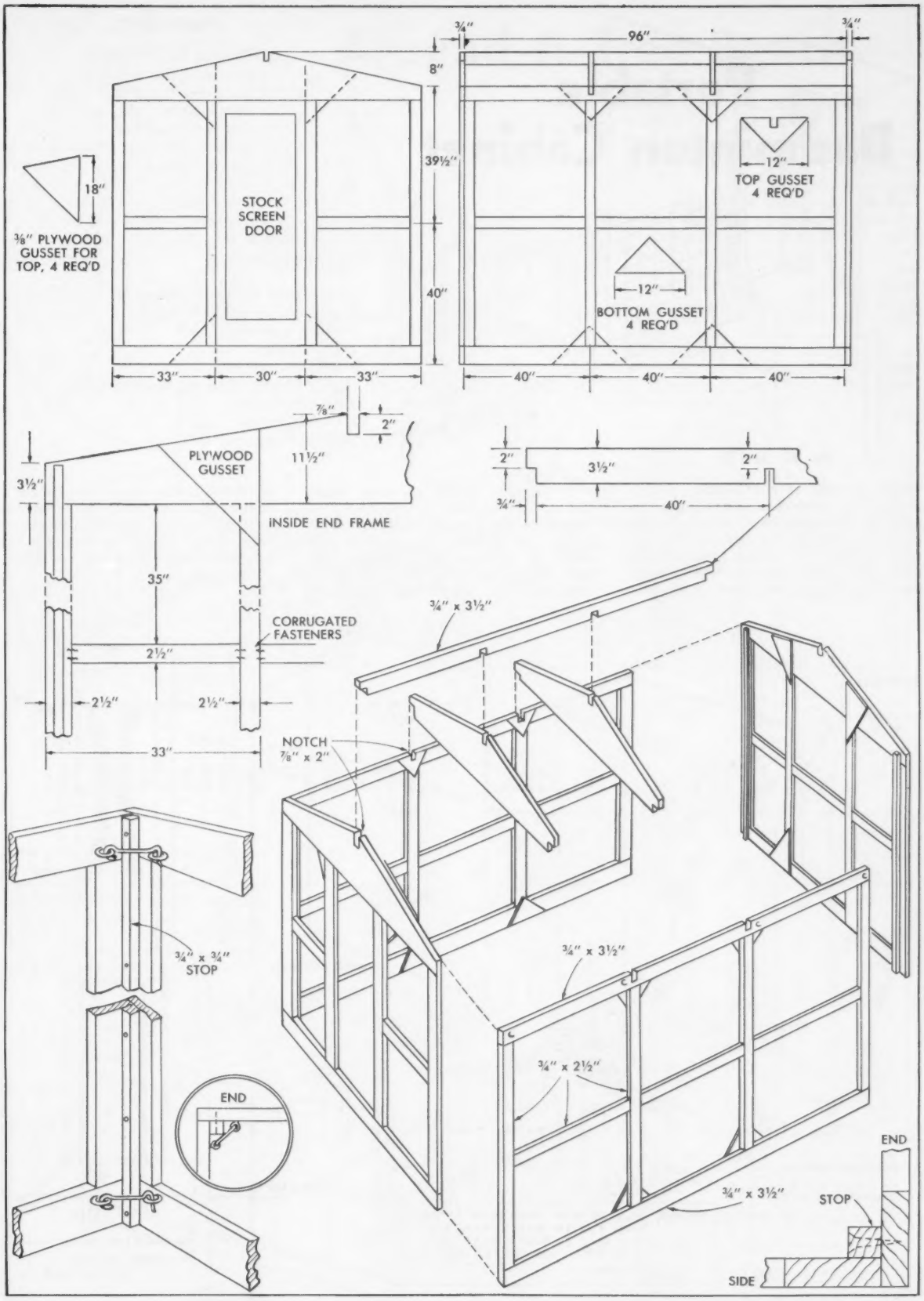


Take-Apart Screen House

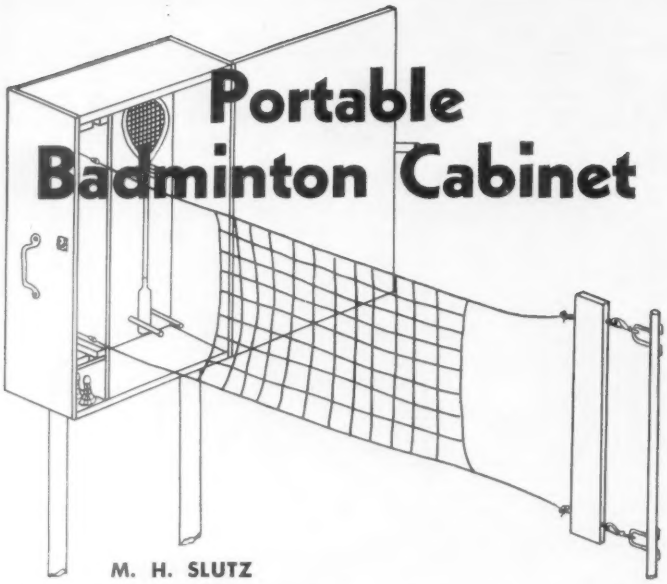


MANY PLEASANT DAYS and evenings can be spent in this screen house, protected from insects, sun and rain. Two adults can move the house when it is set up, and for storage it is disassembled and stowed flat against the wall of the garage or in a corner of the basement.

Power tools are not required, but, as with any job, will save time and labor. The framework is assembled with corrugated fasteners where indicated, and reinforced with plywood gussets. Diagonal braces are not necessary, as the screening makes a rigid structure. Assemble the frames on a flat surface, such as a garage floor, and paint them before installing the screening. The edges of the screening are covered with molding, mitered at the corners. Side and end walls are duplicates, a stock screen door being hung in one of the latter. (30 x 79-in. doors are available from mail-order houses for about $10.) Screening, which can be metal, fiber glass or plastic, overlaps the framing about ½ in., is stapled on two edges, then pulled tight and the other edges stapled. The end and side walls of the screen house are drawn snugly together by turning the eyes, which receive the hooks, in or out as required. Striped awning material is fastened at the eaves by fitting grommets in the cloth over roundhead screws driven into the sides of the upper frame members. △ △


3/4"
96"
3/4"
8"
39½"
40"
18"
3/8" PLYWOOD GUSSET FOR TOP, 4 REQ'D
STOCK SCREEN DOOR
12"
TOP GUSSET 4 REQ'D
12"
BOTTOM GUSSET 4 REQ'D
33"
30"
33"
40"
40"
40"
7/8"
2"
PLYWOOD GUSSET
11½"
3½"
INSIDE END FRAME
35"
CORRUGATED FASTENERS
2½"
2½"
2½"
33"
2"
3½"
2"
3/4"
40"
3/4" x 3½"
NOTCH 7/8" x 2"
3/4" x 3/4" STOP
END
3/4" x 3½"
3/4" x 2½"
3/4" x 3½"
END
STOP
SIDE

Portable Badminton Cabinet



M. H. SLUTZ

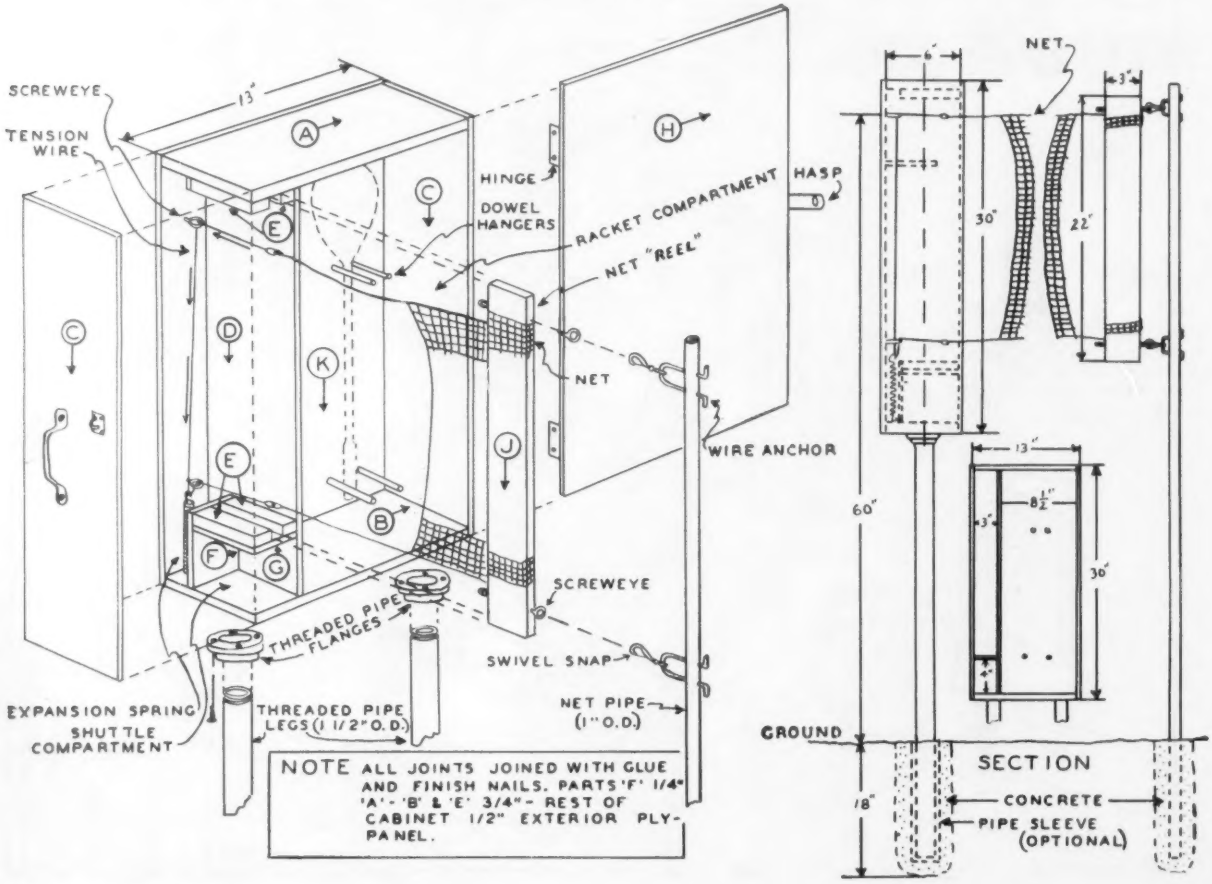
PARTS LIST

A	1 Cabinet top, 6 x 13 in.
B	1 Cabinet bottom, 6 x 13 in.
C	2 Cabinet sides, 6½ x 30 in.
D	1 Partition, 6 x 28½ in.
E	4 Net-reel cleats, to fit.
F	1 Shuttle-compartment back, to fit.
G	1 Shuttle-compartment top, to fit.
H	1 Cabinet door, 14 x 30 in.
J	1 Net-reel, 1 x 3 x 24 in.
K	1 Cabinet back, 14 x 30 in.

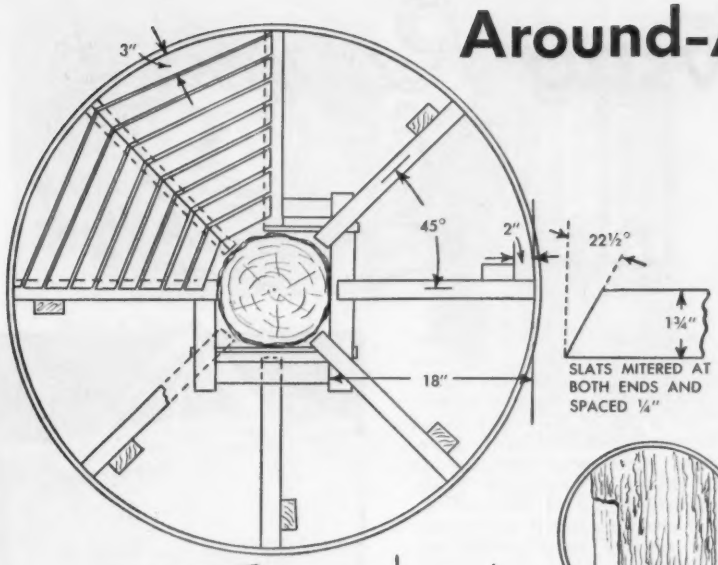
MISCELLANEOUS

½-in. dowel for racket hangers
Pipe for legs and net support
2 Floor flanges
Light spring
6 Small screw eyes
Light, flexible wire for tension lines
2 Small hinges
2 Swivel snaps
Stiff wire for net anchors

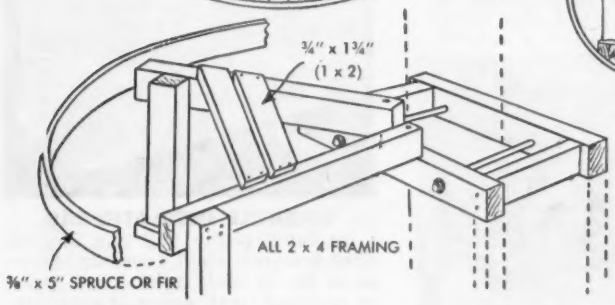
FLOOR FLANGES on the bottom of this badminton cabinet accept lengths of pipe that provide legs to support the cabinet, and playing net, at the correct height. The lower ends of the pipe legs fit into pipe sleeves sunk in concrete. The opposite end of the net, fastened to a "reel," which is length of 1 x 3-in. lumber, is snapped to a length of ¾-in. pipe (approx. 1 in. O.D.) that is fitted in a buried pipe sleeve. A light spring inside the cabinet keeps the net under tension. The shuttles, rackets and net all fit in the cabinet that can be carried away when the legs are removed. If sleeves are not desired, oil the pipe legs, bury them in concrete, then remove them just before the concrete sets. △ △

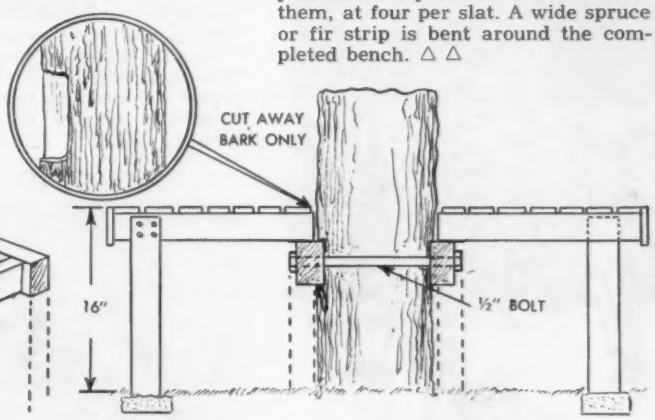


Around-A-Tree Bench



CLAMPS, NOT SPIKES, secure this attractive and convenient bench to a tree trunk. Chip a flat place on the bark on two sides to make a good bearing for the bolted 2 x 4s, and paint the spots with asphalt or tree paint to keep out insects and disease. Draw the bolts up snug and install two more 2 x 4s to form a rectangle. On this frame build the eight radial supports, with legs on bricks or flat stones. Seat slats are mitered at both ends, and the outer one is cut to an 18-in. radius. Use galvanized or aluminum nails. Screws are better if you have the patience to drive 256 of them, at four per slat. A wide spruce or fir strip is bent around the completed bench. △ △

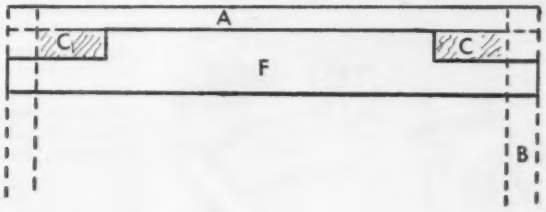


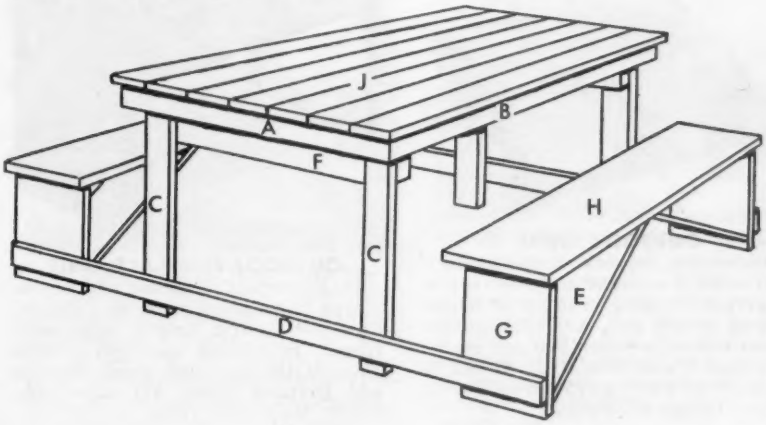


Picnic Table

JOSEPH RUEL

BENCHES AND TABLE are one unit, so toppling benches are not a problem. Bolted construction permits disassembly for winter storage. Ground-level brace eliminates need for stepping over bench or brace, as is the case with some designs. Stock lumber is used for bench and table. △ △

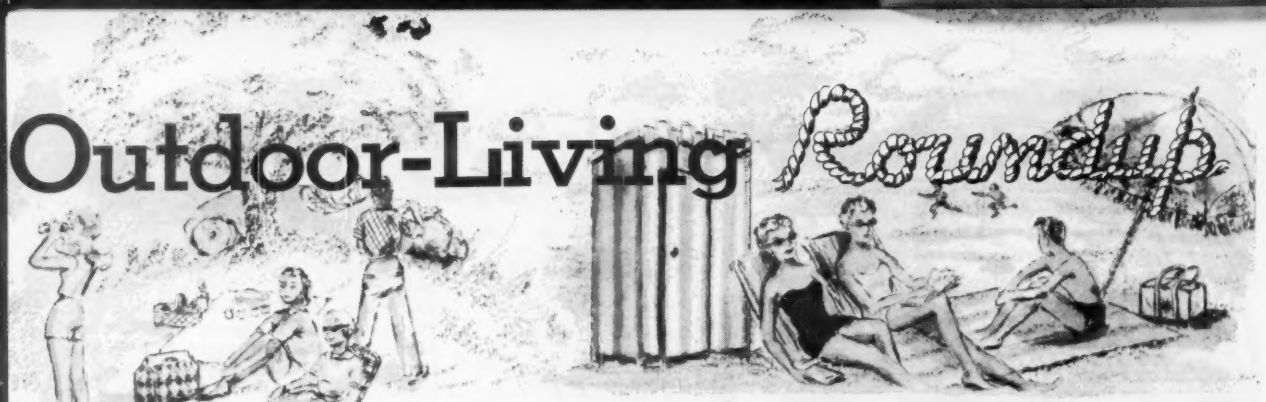


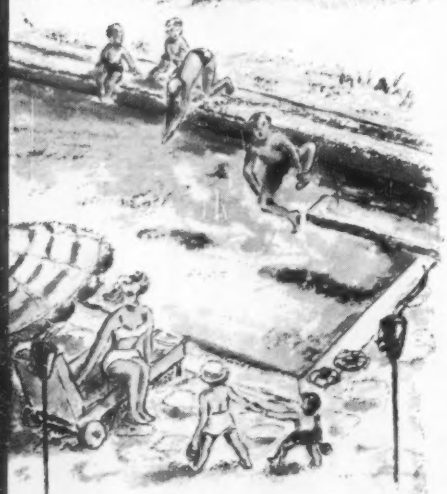


MATERIALS LIST

A 2 x 4, 40 IN. LONG, 2 REQ'D.
B 2 x 4, 56 IN. LONG, 2 REQ'D.
C 2 x 4, 28 IN. LONG, 4 REQ'D.
D 2 x 4, 6 FT. 8 IN. LONG, 2 REQ'D.
E 1 x 4, 24 IN. LONG, 4 REQ'D.
F 2 x 4, 40 IN. LONG, 2 REQ'D.
G 1 x 10, 16 IN. LONG, 4 REQ'D.
H 1 x 10, 60 IN. LONG, 2 REQ'D.
J 1 x 6, 6 FT. LONG, 7 REQ'D.

Outdoor-Living Roundup

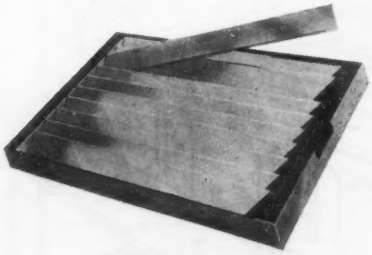




THERE ARE SO MANY FACETS of outdoor living—furniture, lights, patios, lawn decorations, barbecues, picnic equipment—that we have made a "round-up" of just a few of the many items available, and present them here. No matter what your thoughts on "outdoor living," you quite likely will find something of interest, as there are products listed and shown that can even be used indoors for outdoor living!

ICELESS ICE BOX

Aluminum foil laminated to special air-celled board is used in this Iceless Ice Box that is feather-light when empty, comes as flat package. Opens to 7 x 11 x 15 in. Keeps foods hot or cold, as desired. $2 each, 3 for $5.50, Bala Products, Box 337, Bala-Cynwyd, Pa.



OUTDOOR GRILL

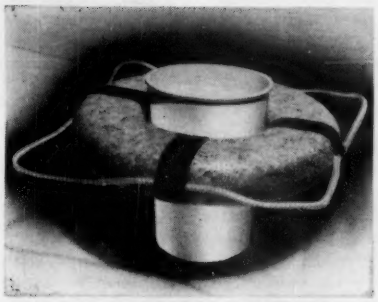
Removable louvers of this outdoor grill have V-sections on lower edges so grease drippings run off at edges instead of into fire. Available at different prices in cold-rolled and stainless steel. Taste Rite Grill, M and B Sales Co., Inc., 2615 Love Field Drive, Dallas 35, Texas.

VERSATILE INSULATED BAG

Insulated picnic bag has unusual linen-textured vinyl covering, keeps foods hot or cold. Available in pearl or charcoal (both with gold sunburst) from leading department, hardware and housewares stores. $4.95, Nappe-Smith Mfg. Corp., Southard Ave., Farmingdale, N. J.

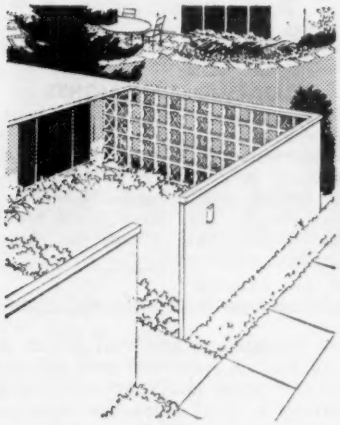
OUTDOOR-FIREPLACE UNIT

Do-it-yourself fireplace can be enclosed in masonry of buyer's choice. Cast-iron doors, heavy angle-steel frame, removable cast-iron grates. Shipped disassembled. From Phillips and Buttorff Corp., 811 12th Ave., North, Nashville, Tenn.



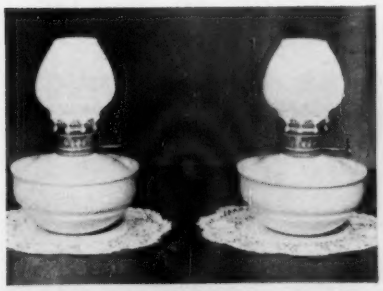
FLOAT YOUR BEVERAGES

Miniature life rings float on the water in a swimming pool, will hold most metal and plastic cups so you need not get out of the pool for a cup of coffee or glass of tea. From General Plastics Corp., 2050 Broadway, Santa Monica, Calif.



FENCE "EXPANDS" YARD

If you want to make your yard look bigger, build a redwood grillework or screen at the side or rear of your property. While the fence defines the limits of your lot, the open grillework lets you look through, gives the visual impression of a much larger lot.



ALOHA "WELCOME" LAMPS

Imported lamps with milk-white glass chimneys burn 60 hr. on filling of kerosene. A quaint touch for parties, indoors or out, lamps also are practical emergency lights. $1.50 each, $2.75 a pair, Super Distributing Co., 4315 Fullerton Ave., Chicago 39.

ALL-ALUMINUM CABANA

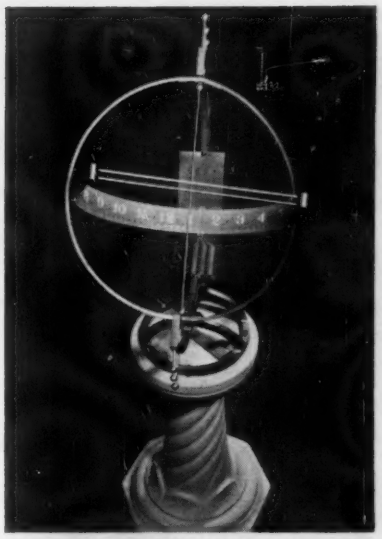
Assembled or taken apart in an hour this cabana can be used for a bathhouse, playroom, storage locker or even shower. Comes in 72 color combinations of baked-on enamel. About $200 from Crown Venetian Blind Mfg. Corp., 150 E. 57th St., Los Angeles 11, Calif.

WOOD-ALUMINUM FURNITURE

Combining the rust-free qualities of aluminum with the weather-resistant qualities of California redwood this attractive outdoor furniture folds easily for storage. Warren's Shop, 6612 N. 18th St., Philadelphia 26, Pa.

ROTARY-MOWER GRASS CATCHER

Earlier, as well as new models of this rotary mower can be fitted with a grass catcher that slips on to a clamp bolted to the mower housing. A slide fastener at the end of the catcher assures easy emptying. Catcher permits using mower as leaf sweeper. Moto-Mower, Inc., Richmond, Ind.



ACCURATE SUN DIAL

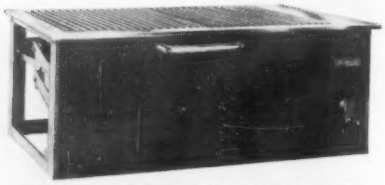
Patented sun dial is made of anodized aluminum in striking design. Pre-set at factory for latitude and longitude where it will be placed, it can be adjusted for daylight-saving time. Modern Sun Dials, Inc., Rm. #94, 17 S. Cherry St., Akron, Ohio.

SPACE-AGE WELCOME LIGHT

This light is authentic period piece of the '80s, brought up to date with rotating beams of colored light. Finished in dull black, will stand years of outdoor exposure. Motor-driven, quiet, trouble-free. Trippe Mfg. Co., 133 N. Jefferson St., Chicago 6, Ill., Dept. WL-WB.

PATIO PARTY LIGHTS

Beautiful, durable translucent-plastic globes in various colors, complete with 25 ft. of cord give carnival air to any party, indoors or out, can be used at any time of the year. Cord with 8 sockets, 8 globes, $11.95, Pennington Crafters, Inc., 3412 "J" St., Philadelphia 34, Pa.



INDOOR-OUTDOOR FIREPLACE

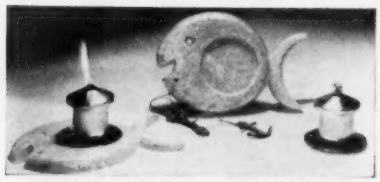
Available in gas, electric and charcoal models, the Majestic Char-Grill can be built into any base of masonry or wood, whether in the back yard or in a kitchen or recreation room. Vent hoods and electric rotisseries also are available from Majestic Co., Huntington, Ind.

YOUR NAME IN FIRE

Torch on this name and address sign burns 40 hr. on filling of kerosene, easily refilled. Torches come in black, copper or gold, steel pole is in two sections for 3 or 6-ft sign. Name and address ordered separately, no extra cost. Tiki Torch home sign, John Charles Co., 1513 Plaza del Amo, Torrance, Calif.

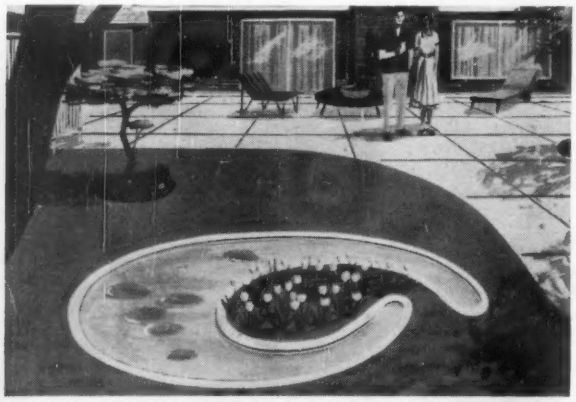
PATIO CHAISE AND CHAIR

Alcoa aluminum is combined with "slim-line" Saran webbing in these indoor-outdoor pieces of furniture. Arms are vinyl bonded to metal, chaise adjusts to 5 positions, both fold compactly. Chaise $22.95, chair $12.95, from Warren's Shop, 6612 N. 18th St., Philadelphia 26, Pa.



FLOATING FISH LIGHTS

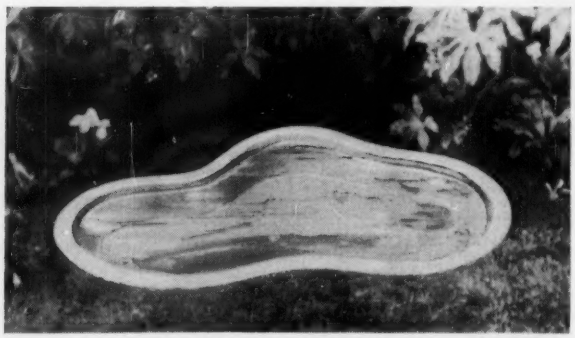
Used alone, these lights make glamorous centerpieces. Floated on the Styrofoam fish base, they can be anchored in fish pond or swimming pool for an exotic touch. $3.95 each, 2 for $7.50, Tiki Fire Fish, John Charles Co., 1513 Plaza del Amo, Torrance, Calif.



Maximum measurements of this free-form pool are 50½ x 84 in., with a depth of 23 in. Capacity is 89 gal., weight of empty pool is 28 lb. Choice of 12 basic colors, including black, red, blue and mahogany.

Add Beauty with a Garden Pool

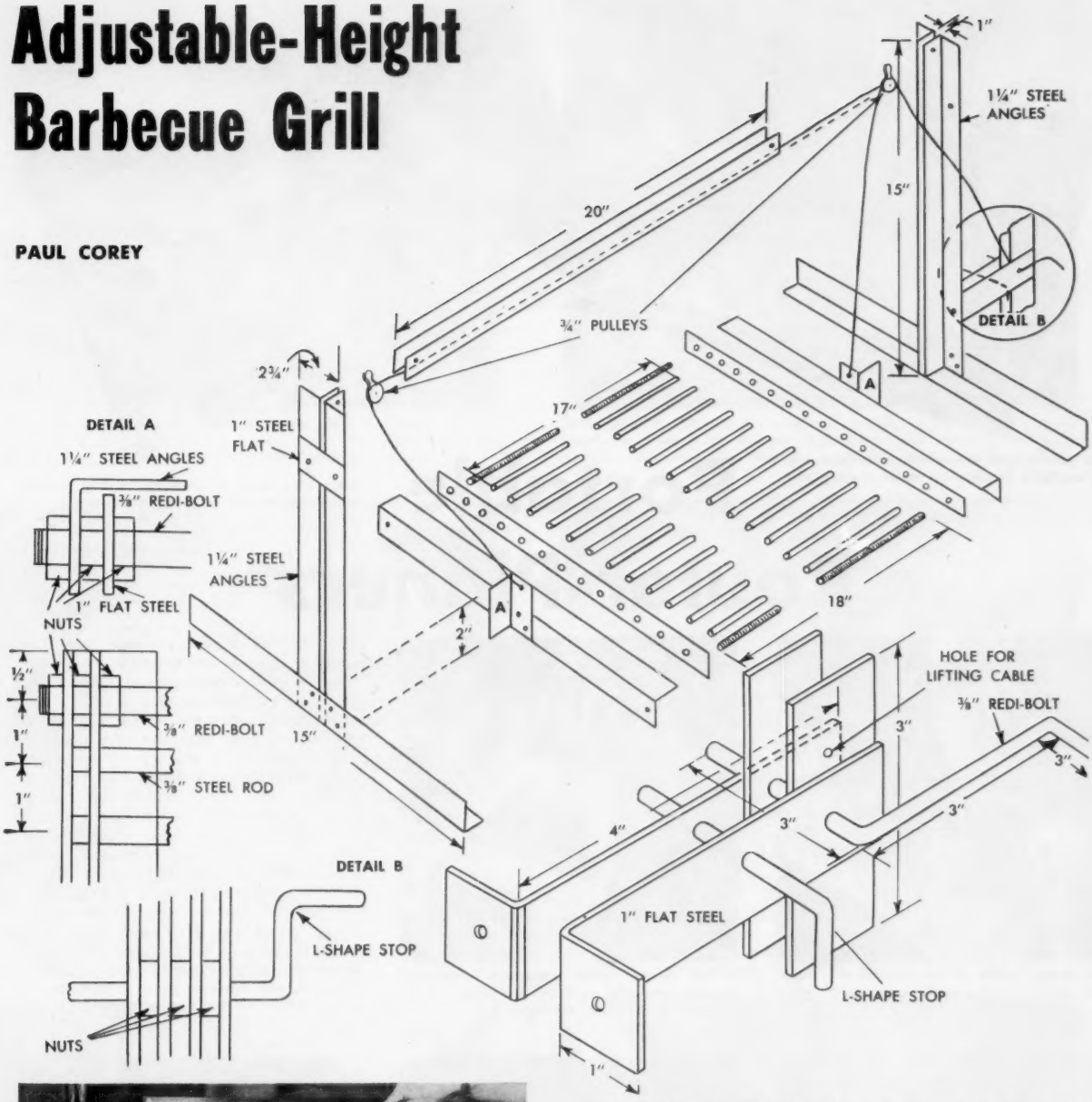
LOOKING FOR SOMETHING UNUSUAL to add that bit of interest to your yard or garden? A free-form pool will add a cool spot of color and the ripple and sparkle of water will give your landscaping a focal point that changes constantly with changes in the light. By day it will catch the gleam of the sun, at night the sparkle of patio lights or lanterns. Definitely a do-it-yourself project, the pools are available in various sizes and shapes and a selection of colors. Flecks of gold or silver also can be added to the cast-in color of the fiber glass shell. Other than digging an excavation, the only preparation is the addition of a coat of bituminous paint to the outside of the shell if it is to be in soil with an excessive alkalinity content, pH8 or more. All pools shipped with complete installation instructions. For further information on Curvatone Pools, write to Penney Mfg., 7 Lovell St., San Rafael, Calif.

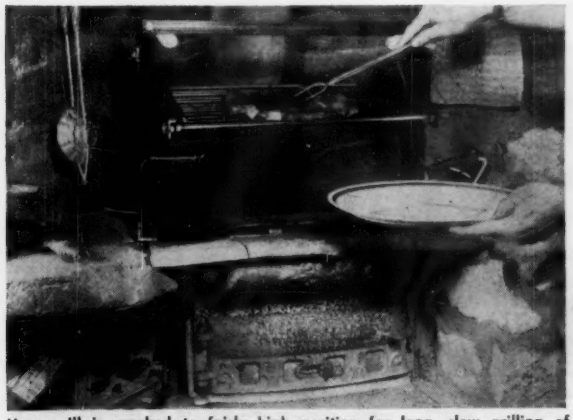


Kidney-shape pool is 41 x 60¾ in., and 11¾ in. deep, capacity is 70 gal. As with other shapes of pools, basic colors are available as standard, while gold or silver flecks can be added at extra cost.

Adjustable-Height Barbecue Grill

PAUL COREY





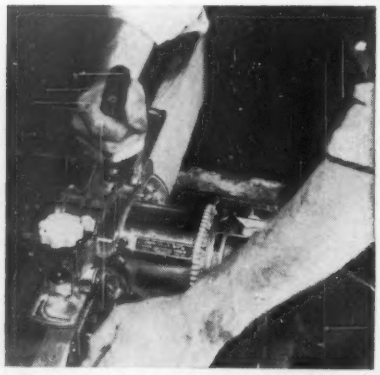
Here grill is cranked to fairly high position for long, slow grilling of steak. For quicker cooking of other foods, grill can be lowered.

SOME FOODS require long, slow grilling to bring out the most in flavor, other items, such as eggs, require quicker heating. Most barbecue grills are not adjustable, or have just one or two positions in which they can be placed; usually too close or too far from the fire. The grill described in this article can be cranked up or down as necessary to suit various foods, and to accommodate fires of various sizes. The grill consists of ⅜-in. steel rounds fitted in drilled flats. The ends of the rods are held in place by steel angles that are held by nuts on pre-threaded steel rod (called Redi-Bolt, available at most hardware stores). Woven-steel picture wire is used for "cable" that is threaded through two swivel-eye pulleys, and from the crank to the grill. When installing the wire, lower the grill to the lowest required position, block it level, then attach the wires. Pull the wires to equal tension so the grill will raise and lower smoothly and level. To hold the crank at any level, insert an L-shape bolt or length of steel rod through holes drilled in the crank support so the crank bears against it. △ △

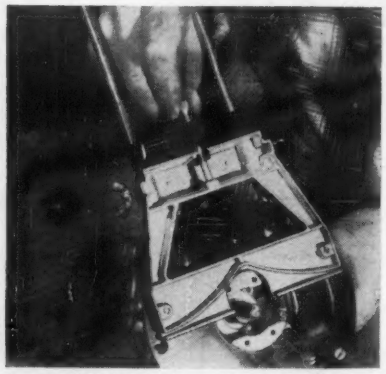
Both Stanley and Millers-Falls router-planer kits are available in attractive metal carrying cases.

Open cases show brackets for holding various accessories, as well as planer attachments.

Portable Router-Planers



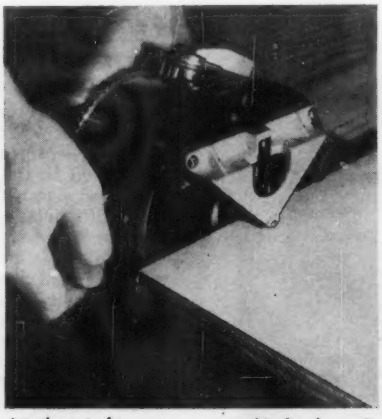
With Stanley plane set for generous cut, rough-edge stock is made smooth in one quick, effortless pass of this handy tool.



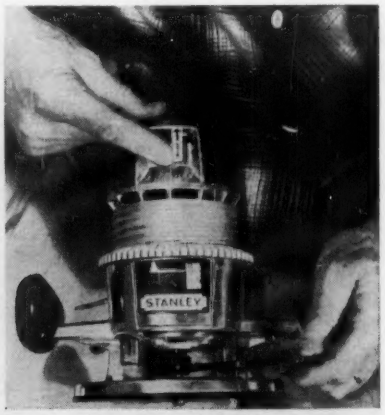
As on Stanley guide, micrometer adjustment permits absolutely accurate positioning of bit in portable router for cabinetwork.

ONE OF THE MOST versatile portable electric tools in the WORKBENCH Model Shop is the router-planer. We have two models, one is the Stanley, the other the Millers-Falls. Each consists of a power unit that fits into either a router base or a planer attachment. The Millers-Falls unit also has a wooden table into which the power unit fits, where it can be used either as a shaper or an edge planer. Cutting a decorative edge on stock, making a blind recess—such as where a dado is required when the work cannot be fitted on a saw table—trimming the edges of plastic laminate, cutting circular shapes, all these are done easily and quickly with a router. The planer makes door trimming a snap. △ △

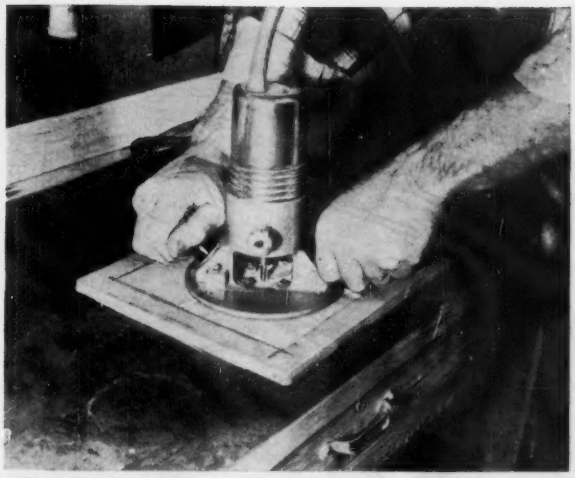
Here guide is used to position bit in router for cutting trim edge on piece of stock used for furniture top or shelves.



Attachments for routers, as on this Stanley unit, permit trimming fraction of inch from plastic laminate cemented to wood.

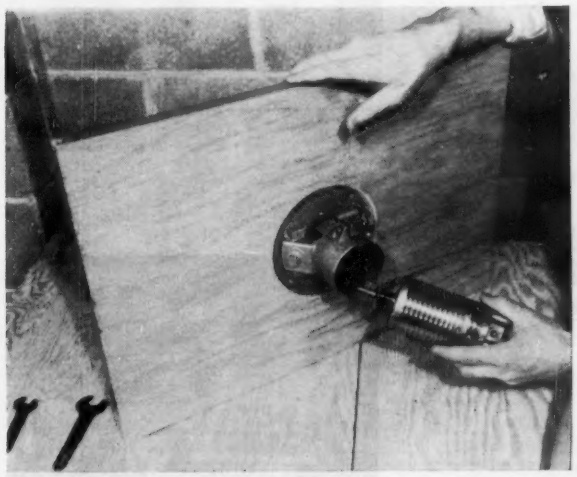


Pressing off-on switch of Stanley unit upward locks shaft, so tool bits can be removed with use of just single wrench.

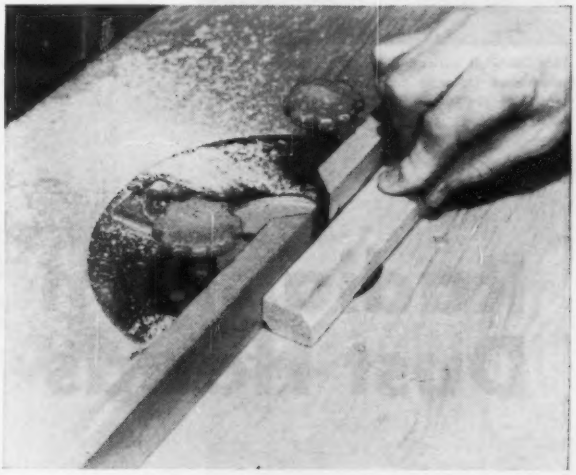


Millers-Falls Dyno-Mite router here is being used for job most often thought of as "routing," making shallow recess into which inlays can be fitted, or just to form attractive pattern on surface of wood.

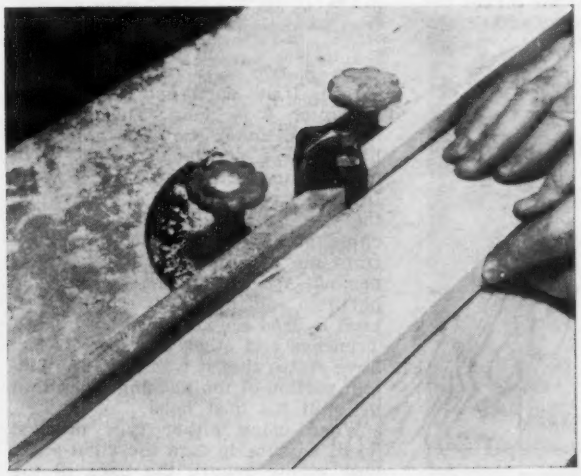
When pilot bit (bit that has projecting end for guide) is used, it is not necessary to use guide. Shaped edge would make attractive final touch to piece of furniture that otherwise would have plain squared edges.



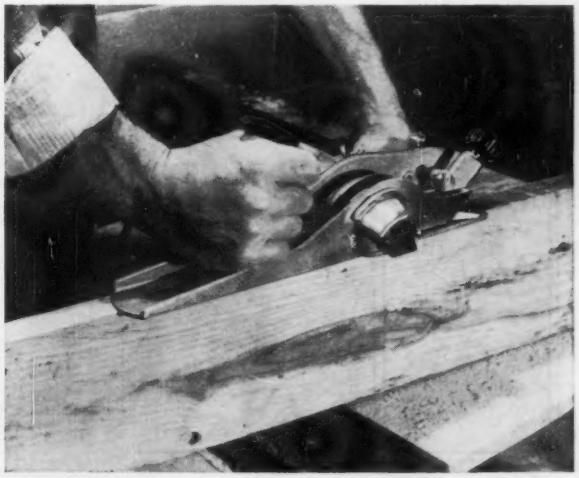
Millers-Falls power unit is fitted in shaper table to become shaper-jointer. Table has built-in motor mount, is 1-in. marine plywood, measures 15 x 24 in. Easily fitted over sawhorses, or clamped to edge of bench.



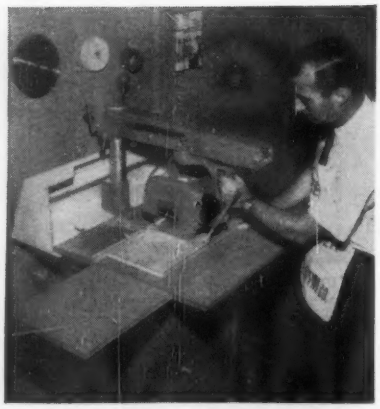
Use of various bits permits cutting bevels and shapes on the edges of stock. Adjustable fences permit varying depth of cut, motor adjusts up and down to make possible various cuts with just a single tool bit.



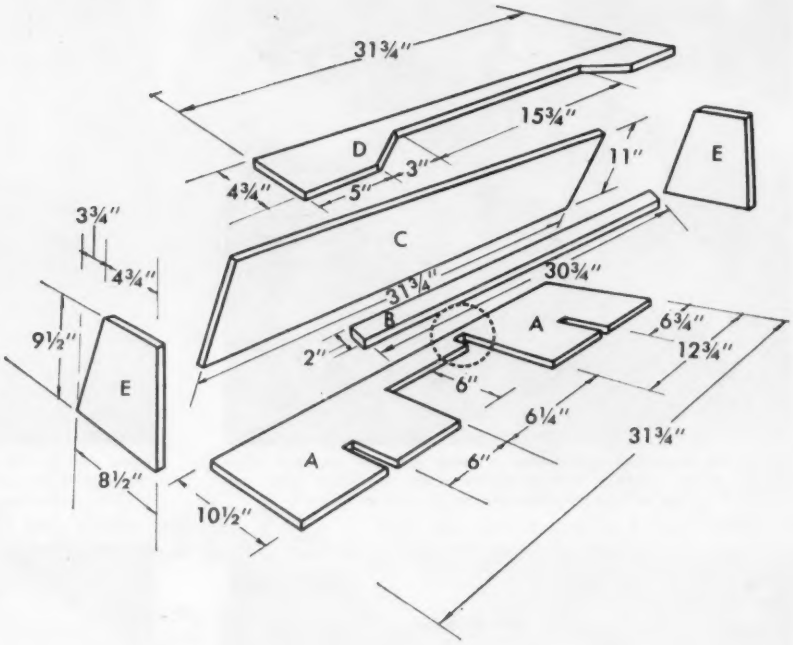
When planer bit and outboard arbor support are added to power unit, the table becomes an edge planer. This setup is ideal for truing up the edges of lengths of stock that are to be edge-glued, as for table top.



With power unit in planer attachment, you have tool that makes trimming doors a breeze. Easily handled, tool permits fast cutting of edge of stock that is to be trimmed to fit against irregular or curved surface.



This De Walt version of a dust hood is cut and assembled from ½-in. plywood. For easier removal of sawdust, unit should be painted.

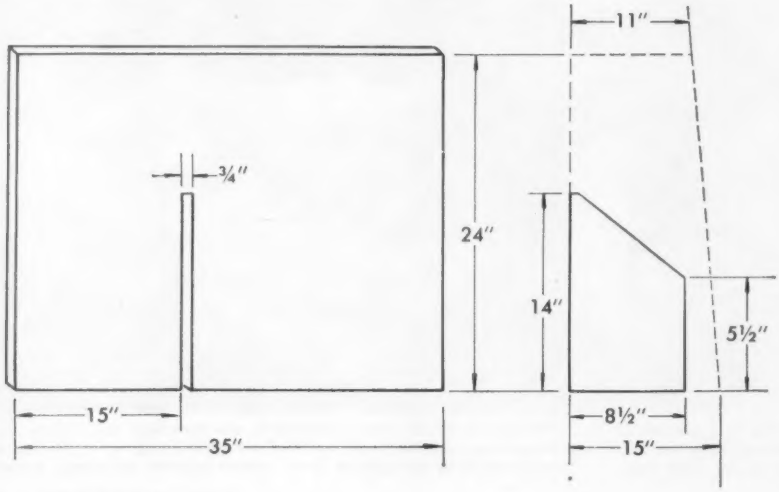


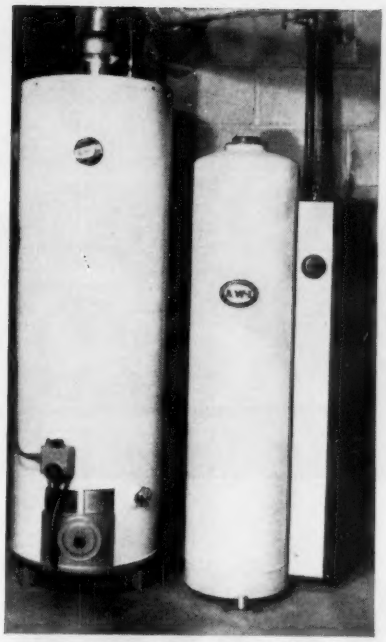
Radial-Arm Saw Dust Hoods

Cut from the bottom of box in which saw was packed, this unit is higher than De Walt version, offers less clearance for column crank.

TWO SOLUTIONS to the problem of flying sawdust from a radial-arm saw are offered here. One design is from the De Walt Co., the other from Mr. John J. Love of Tonawanda, N. Y. For the De Walt version, ½-in. plywood is recommended, the pieces being glued and nailed together. In piece A two ⅜-in. dadoes are cut 6¾ in. from each end, and are a minimum 3 in. long. These fit the dust hood under the saw table. The baffle B is positioned about ⅓ of the distance from the top of the hood. In the circled area of the drawing, the ½ x 1-in. notch is for the power cable. Mr. Love's dust hood was built from the box in which the saw was packed. His design has a vertical partition and the one side of the dust hood is used for hanging saw blades, wrenches and other accessories. Mr. Love states that it was from the bottom portion of the packing crate that he built his dust hood.

When using either type of dust hood, be sure to turn the right-angle hose elbow toward the back of the saw—toward the dust hood—when ripping. Also, lower the guard so it just clears the work. △ △





1. Compact and attractive, the AWI softener is pre-painted at the factory, has metal shroud that covers piping at side of tank.

2. Kit includes even stick of pipe-joint compound, salt for first regeneration, funnel for pouring in salt and resin.

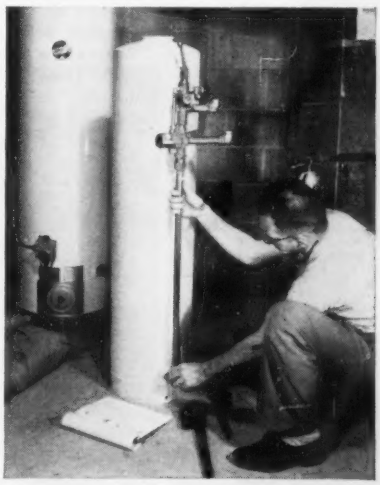
3. All parts are clearly labeled so there is no chance of error in assembly. Notched legs permit leveling tank on sloping floor.

Kit-Assembled Water Softener

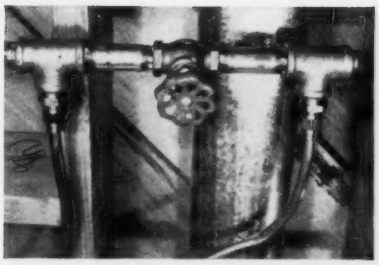
RECOGNIZING THAT do-it-yourselfers have no trouble installing plumbing, Associated Water Industries of Buffalo, N. Y., now offer a water softener in kit form for a homeowner to assemble and install himself, Fig. 1. The kit is complete, Fig. 2, including even a bag of salt for the first regeneration. (No regeneration is required when the unit is first installed.) The semi-automatic model we installed includes a timer clock that controls regeneration. In Fig. 2 the timer-valve assembly already is on the tank. Each part of the softener is labeled clearly, Fig. 3, so there is no chance of error in assembly. A stick of pipe-joint compound is included.

Following instructions we quickly assembled the softener, Fig. 4, then positioned and levelled it. Because we did not want to waste softened water for such things as watering the lawn, we put a by-pass in our piping, Fig. 5, with a valve that normally is closed. The valves at the water softener are open. As shown in the drawing, reversing the condition of the valves permits running untreated water straight through the system.

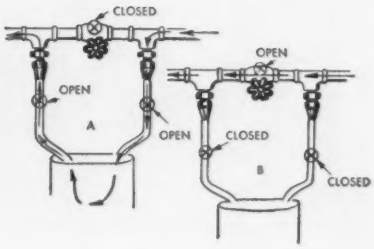
A call to the city engineer gave us the information that our water had 10-grain hardness (10 parts per million was his phrasing). This data plus the number of persons in the family determines the size of softener required. △ △



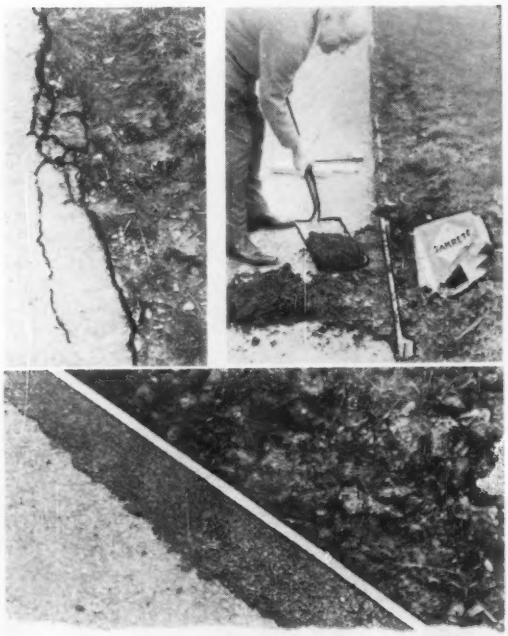
4. As softener is assembled, pipe and fittings are added to tie it into your water-supply system. Here pipe and elbows lead upward.



5. Tank by-pass with valve that normally is closed. Drawing shows how reversing of valves takes softener out of water system.



After application of sealer drive is clean, dark and rich looking. Surface is sealed against moisture, even patches have become invisible.



Before applying sealer, holes in asphalt drive and broken edges are filled and repaired with cold asphalt mix. Sakrete mix was used here, being readily available, easily applied. It is shoveled in place, then tamped solid.

DRIVEWAY

WHAT CAN BE DONE to an asphalt driveway to keep it in good condition, and how do you repair one that has begun to deteriorate? Checking with the Bitucote Co. we were interested to learn that maintenance for an asphalt drive should begin immediately after it is installed, by coating it with a sealer. The sealer protects the asphalt from weathering and prevents loss of the binder in the material. Sealer then should be applied every year to keep the drive in top condition. If you tinker with cars on the drive, another type sealer, one that is impervious to gasoline and oil, should be applied in the area where you will work. "Tarfex" is the trade name of the latter product manufactured by the Bitucote Co. This sealer contains fibers and very fine sand. It provides a mildly abrasive surface, which makes it ideal on driveways that are on inclines where they may become slippery when wet, or where a drive is used as a basketball court.

Where an asphalt drive is several years old and in need of repair, a homeowner can fill holes in the surface with cold-mix asphalt, such as manufactured by the Sakrete Co. On the drive where we tested the materials a section had broken away during the winter. We staked a board along the drive, after cleaning away dirt and debris, then shoveled in Sakrete asphalt mix and tamped it firmly. The following week we applied sealer right over the patch, and it blended in with the rest of the surface so it can hardly be noticed.

The first, and most important, step in applying sealer is to use a garden hose at full pressure to wash the sur-

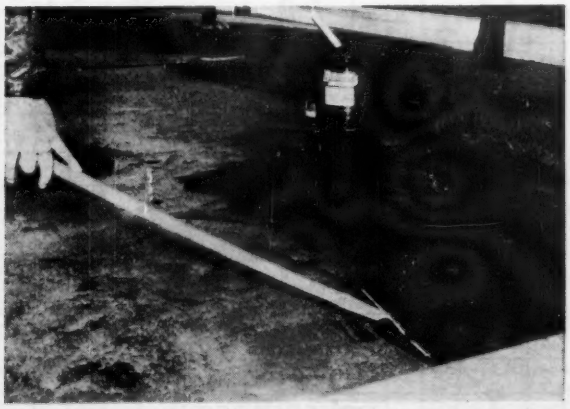
Most important step in application of sealer is to hose drive thoroughly so dust and dirt are washed up out of asphalt and can be swept away.

Appearance of drive before application of sealer was typical of many that are several years old. Color is dull gray, surface is full of cracks and holes, gravel is breaking out of surface, edges of drive are crumbling.

MAINTENANCE

face of the asphalt. It is amazing how much dirt can be washed from the roughened surface of a weathered asphalt surface. Sealer must be applied in dry weather at a temperature of 70 deg. or higher. The area to be sealed is moistened by spraying with water, then an ordinary straw broom is used to brush on the sealer, much in the manner of applying paint. After completely sealing the drive, Tarfex was applied to an area outside the garage door. A squeegee is used to apply this material, which is fairly thick. It dries to a dull finish, the sealer dries to a glossy black. The drive now is protected against weather all over, outside the garage it is resistant to gasoline and oil and the appearance of the gleaming black surface really dresses up the yard. △ △

Each 5-gal. container of Sealer is mixed with 2 gal. of water before application. Water also is added to Tarfex. The latter contains sand and fiber for skid-resistant surface that is impervious to oil and gasoline.



Tarfex is fairly thick, is applied with squeegee. This material has heavy enough body to fill and smooth surface of even extremely roughened surfaces of asphalt. It is ideal for area where car is frequently parked.

Sealer is applied with ordinary broom, is brushed on in much the same manner that paint would be applied. Being of fairly thin consistency it brushes into cracks to fill and seal them, prevent further deterioration.

Decorated Book Basket

This handy book carrier with its sparkling candle-and-moth design can be quickly and inexpensively made by any craftsman using simple hand tools.

THIS hand-decorated book basket adds a charming accent to desk or table. Use it either as a book trough or portable carrier for reference as well as leisure reading. You will find it easy to assemble and fun to decorate. Just follow the assembly steps, and the painting pattern.

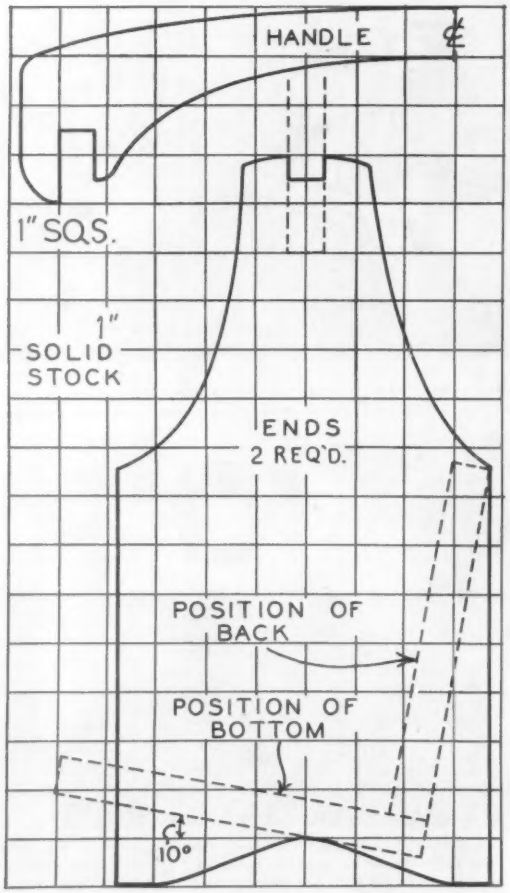
1. Lay out patterns for ends and handle on light cardboard, and cut templates. Trace around these to the lumber; any well-seasoned ¾-in. solid stock will do. Measure the two trough members directly on the lumber; saw out, and square up.

2. Sand smooth and mark positions of joining pieces. Bore shank and countersink holes for screws.

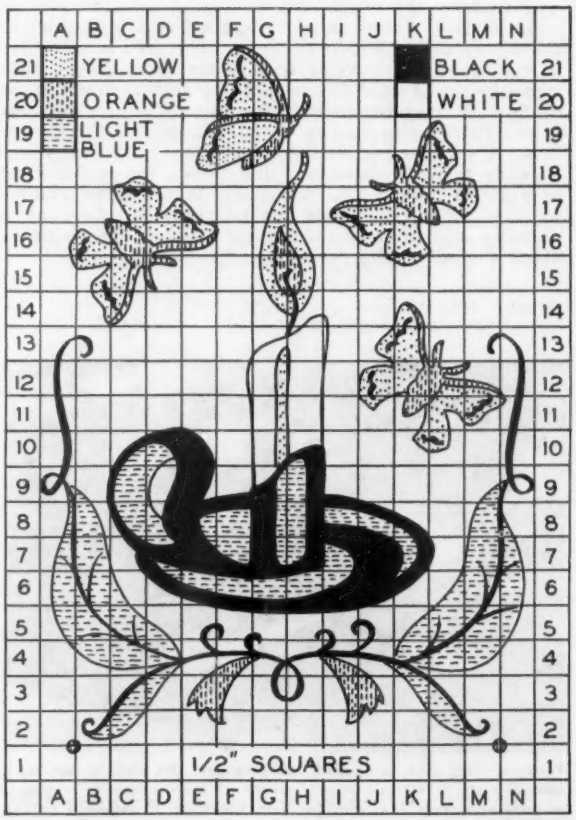
3. Assemble the pieces with glue and screws. Cover heads on side members with wood filler, and sand smooth for finishing.

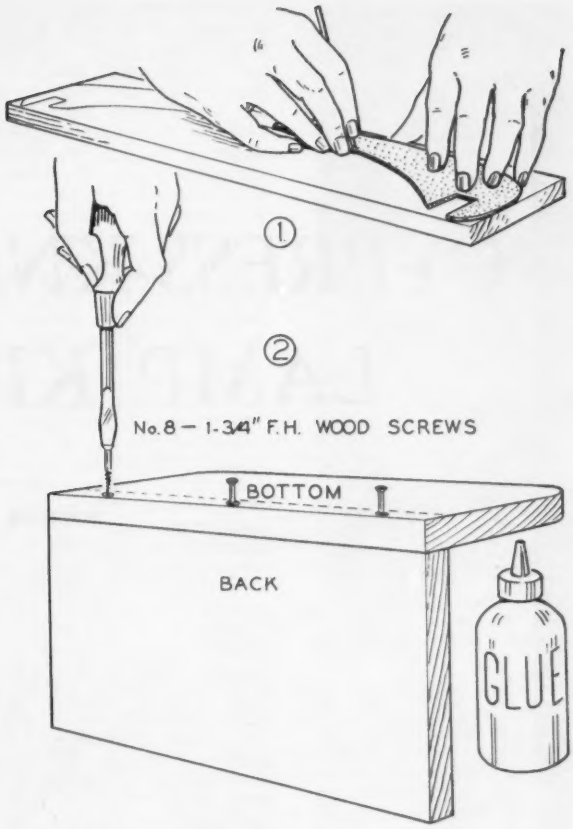
4. Brush on and wipe off a brown stain to impart a soft tone to the wood. Let this dry thoroughly.

5. First, trace the painting design full-size on white bond paper. Next, blacken the back with a very soft lead pencil to act as carbon paper; tape down, and trace through to the wood. Give the piece a thinned all-over coat of spar varnish to provide a filler. Sand lightly, and decorate with enamels. Be sure to let one color dry before another is painted over it. Finish up with a second coat of varnish. When this is dry, apply a coat of good quality paste wax. △ △

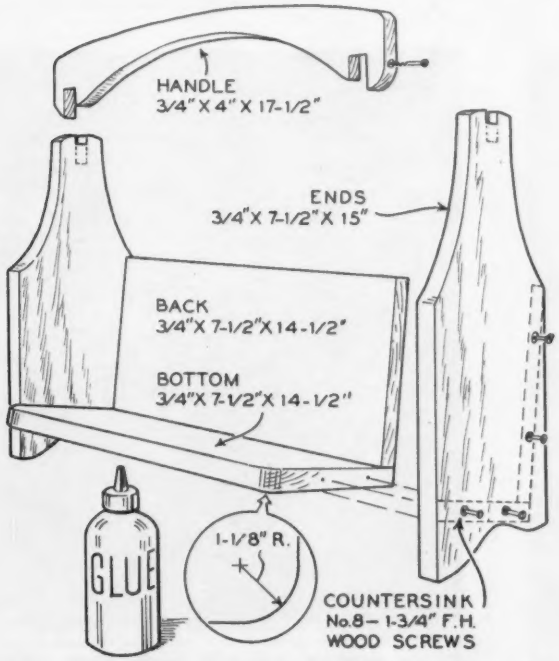


Painting design shown in ½-in. squares with numbers and letters in the margin to help locate positions where parts of the design intersect graph lines. These points when located and connected freehand produce an accurate pattern.





Cardboard half pattern for handle is traced around, flipped over and traced again to complete the outline. Countersunk screws join bottom of trough to back.



Sides are assembled with trough, and the handle notch-jointed to sides.

Book Reviews

MOTOR'S AUTO REPAIR MANUAL
$7.95 (plus 45c shipping charges),
Motor Book Dept.,
250 W. 55th St., N. Y. 19, N. Y.

EVERY PART of every American car, including the new compacts, is described and shown in photos or drawings in this book that can make any interested car owner a mechanic. Engines, transmissions, fuel pumps, carburetors, gauges, even bodies and frames are clearly illustrated in a simple, step-by-step manner that will permit any mechanically-inclined car owner to disassemble and repair any part. Trouble-shooting charts help solve the tough ones, and there is even a tune-up chart showing the plug and point gap, timing-mark location, etc., for most foreign cars.

SWIMMING POOLS
Lane Publishing Co.,
Menlo Park, Calif. $1.95 for paper,
$3.50 for Library edition.

POTENTIAL POOL buyers or builders, even those who presently own pools, would profit by having this book. Pool planning, maintenance, off-season care, safety, landscaping around a pool are just a few of the subjects covered. Included are many photos and drawings.

PRACTICAL RESIDENTIAL WIRING
by John F. Nowak
540 pages, $7.95
D. Van Nostrand Co., Inc.,
120 Alexander St., Princeton, N. J.

SECOND EDITION of this book has been revised to give complete information on doing every electrical job in accordance with current National Electric Code. Tells how to read wiring diagrams, describes open wiring, use of nonmetallic cable, armored cable and metal conduit. From wall switches to doorbells.

TRUSTEE FROM THE TOOLROOM
by Nevil Shute, 311 pages. $3.95
Wm. Morrow and Co.,
425 Fourth Ave., New York 16, N. Y.

FICTION IS NOT often considered in the pages of WORKBENCH, but this book recounts the treasure-hunting adventure of a mild-mannered home craftsman who writes articles for a mythical magazine called "Miniature Mechanic." The mechanical references are authentic (Mr. Shute was formerly an aeronautical engineer and founded his own airplane factory), and world-wide respect for meticulous craftsmanship is one of the motivations of the story, making it possible for Keith Stewart, the hero, to go almost around the world with very little money.

CYPRESS-KNEE LAMP KITS

WARNER BENSON

1. Cypress-knee lamp assembled from kit has glowing reddish-brown sheen brought to a higher gloss by patient hand rubbing. This model has base that is slice cut from large knee.

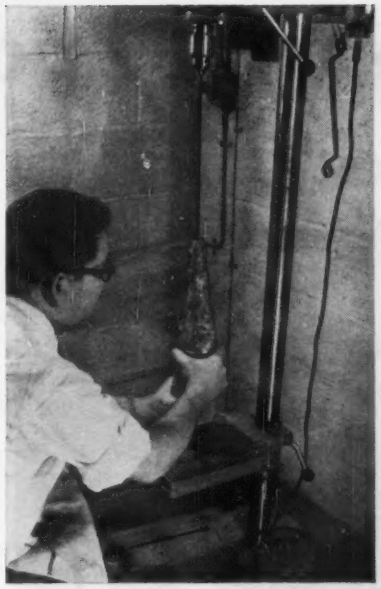
STARTING WITH a few lamps made from cypress knees, "because he wanted to make something of them," Jules Gottl of Independence, Mo. has built a business of manufacturing and selling cypress-knee lamps in every form from kits that the buyer can assemble himself, Fig. 2, to the finished lamp, Fig. 1. The kit, of most interest to WORKBENCH readers, consists of all necessary parts except the shade, as in Fig. 2. There is a choice of three types of base; one is a section sawed from a large cypress

2. Shown is Lampcraft kit. Included in kit are knee for lamp column, harp for shade, lamp socket, cord and four rubber feet and screws for attaching. Choice of cypress section, marble or wood base is offered.

3. Photo of cypress knees before and after removal of bark shows just one step required to ready knees for use as lamp columns. Variety of shapes assures that no two lamps are ever identical.

knee, another is cut from hardwood and the third type is a piece of polished marble. There are over a dozen colors of marble available, and each piece is selected, cut, drilled and polished by Mr. Gottl, Fig. 6. As was intended, the lamp kits are fine projects for clubs and other social groups looking for ways to make money in a creative manner. The cypress-knee lamp columns are cleaned of bark and smooth, but require hand finishing, Fig. 3, to bring out the glowing, reddish-brown sheen that makes the lamp column a thing of beauty. Shades are not furnished with the kits, because it would be an almost impossible task to stock a selection that would meet every possible choice. Organizations that assemble the lamps can sell them without shades, or might supply shades on special order. Of the three bases, the cypress-knee section and hardwood are the least expensive, the marble the most costly. The latter base is fairly heavy, and is recommended for lamps that are located where they might be knocked over by youngsters, or perhaps in a busy reception room of a doctor's office.

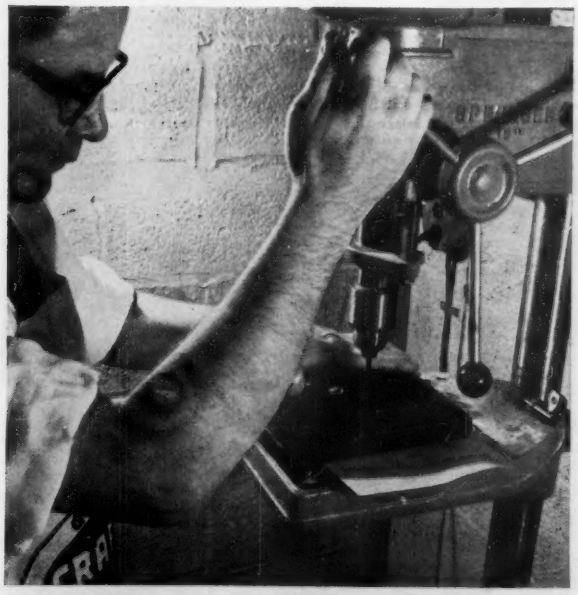
Of interest to the home craftsman are some of the tools and methods that Mr. Gottl had to design for making the lamp columns. Cypress-knee lamps are not new; they can be purchased in many southern states. Lamp cords, however, come out of the columns at any convenient spot in the length of the irregularly-shaped knees. Mr. Gottl wanted the cord to come out of the bottom of the column and run through the base.



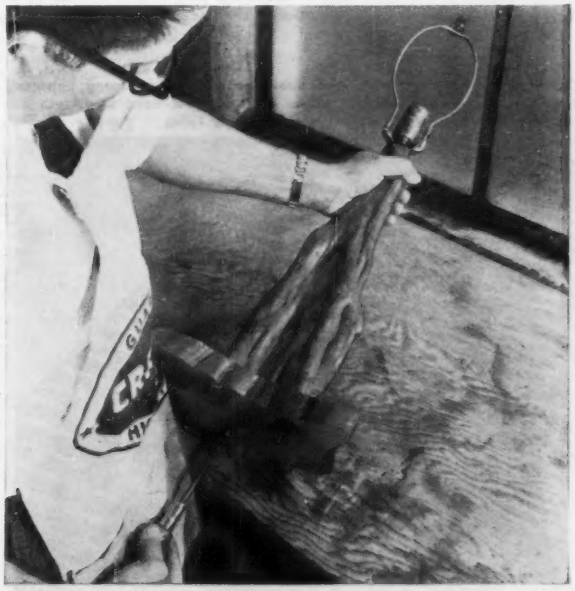
4. This step in preparation of knee for use as lamp column shows need for specialized tools and techniques that are carefully worked out.

5. Although ends of cut-off knees are squared-off before drilling, they are sanded again to assure a flat surface.

In the first operation on the knees after the bark has been boiled off and the ends cut square, a large-diameter hole is drilled up from the bottom. When the columns are shipped to Mr. Gottl from Florida, he uses a special, long drill bit, Fig. 4, he designed himself, to drill down through the top of the column to meet the hole drilled from the bottom. Another step, Fig. 5, is to smooth and true the bottom of the column so that it will sit square on a base, Fig. 7, and the pipe projecting from the top will be absolutely vertical. If you would like a kit for assembling a lamp yourself, or belong to an organization that might be interested, write to: Jules A. Gottl, Lampcraft, 11417 Truman Rd., Independence, Mo. △ △



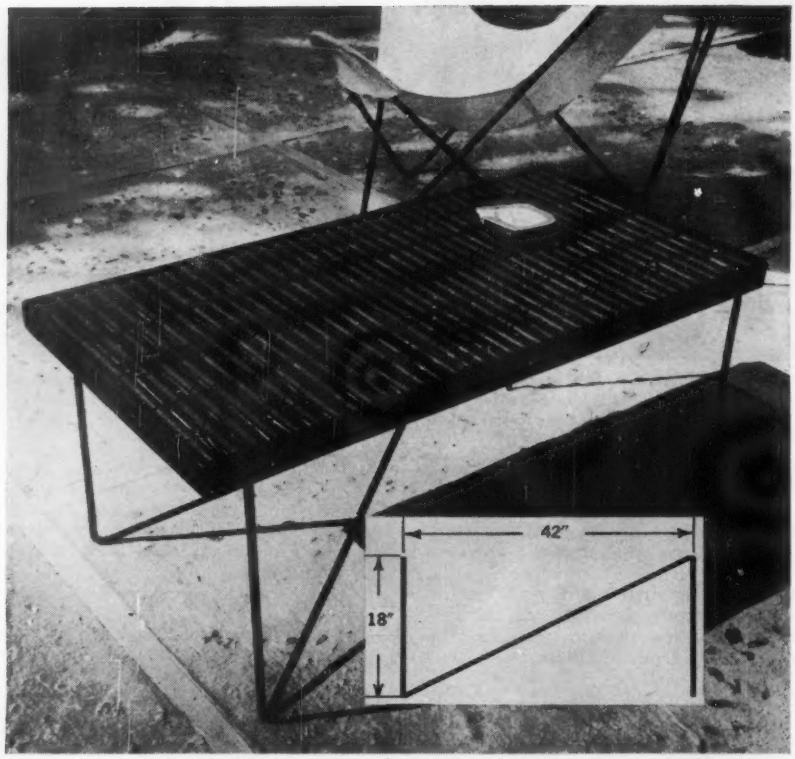
6. Special drill bits are used to drill holes in marble bases, and the marble is finished to high polish on top and four sides to ready it for use as base for lamps. Several colors are available.



7. This would be final step in assembly of lamp from kit; base is installed with wood screws, rubber feet already have been attached. Bulb now is screwed into socket, shade attached and lamp plugged in.

Woven-Top Patio Table

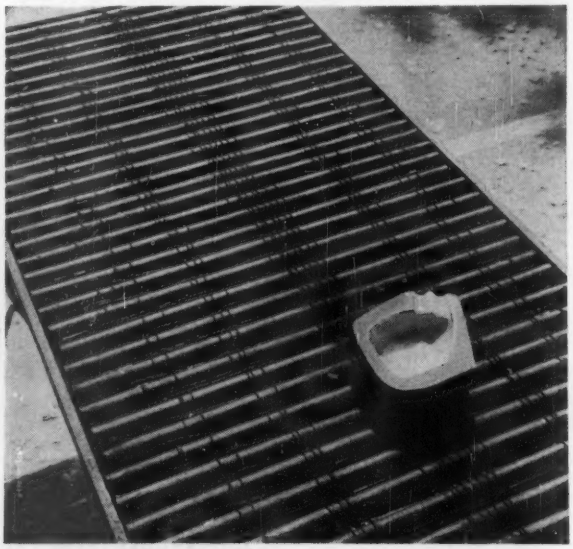
JOHN ROBINSON



Unusual design of this patio table is compatible with modern outdoor furniture, its "wrought-iron" legs closely match the frame of the "butterfly" chair in the background, making them appear to be a set.

CORNERS OF THE FRAME of this patio table are mitered for neater appearance and to close the ends of the ½ x ½-in. rabbets that are sawed or routed on the insides of the upper edges of the 1 x 2 stock used. Dimensions of the table top can be varied to suit, the original measuring 2 x 4 ft. Lengths of half-round, ¼ in. shorter than the length between the edges of the rabbets, now are spaced about ¼ in. apart and the ends are glued to the lower edges of the rabbets. Leave a ⅛-in. space at each end of each half-round. Heavy hemp or manila twine next is "laced" along between the half-rounds and around the ends to provide the "woven" effect. Fish line then is wrapped around the twine, then around the half-rounds, to complete the woven appearance, and to keep the twine in place. The legs of the table consist of two lengths of ½-in. reinforcing steel, as used in concrete work. The legs are bent in a Z-shape, the two uprights on each leg being left extra long, so they can be cut exactly the same length to assure that the table will sit level. Holes are bored in the table frame to accept the ends of the legs. Wrap wire around the leg members where they intersect. Paint the completed table a flat black, a spray gun being best for this job. △ △

Close-up of table top shows how heavy hemp twine is strung between 1-in. half-rounds to provide a texture contrast. Fine, hard cord, such as fish line, is woven over and under rounds and twine.



This shot of underside of table shows mitered corners of 1 x 2 frame, and how reinforcing rods are fitted in holes drilled in the frame. Wire is wrapped around intersection of leg members at center.

Everyone in the family is involved in this summertime "workshop roundup" on the patio.

Patio Workshop

Photo courtesy Dremel Mfg. Co.

SUNNY SUMMER DAYS keep you out of the workshop, but when there are jobs that require jig-sawing, sanding and drilling, you can take the "shop" out to the patio table and let the family help. When the work is done, there is a quick cleanup, with the sawdust and wood scraps going into the barbecue to help start a quick fire for sizzling steaks, hamburgers or hot dogs. Mom likes Sis's old-time car, and is about ready to go into the house for a big pitcher of ice-cold lemonade. There is time for work and play in the good old summer time.

Another Model-Shop Sprayer

UNFORTUNATELY OVERLOOKED in our article on paint sprayers in the last issue was our BVI electric sprayer. This completely self-contained unit was out on a job somewhere when we did the sprayer story in our Model Shop. In this unit, you simply thin your liquid, pour it into the glass container, screw on the top and pull the trigger. After plugging in the electric cord, of course. A product of Burgess Vibrocrafters, Inc., Grayslake, Ill.

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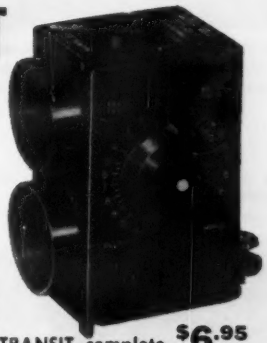

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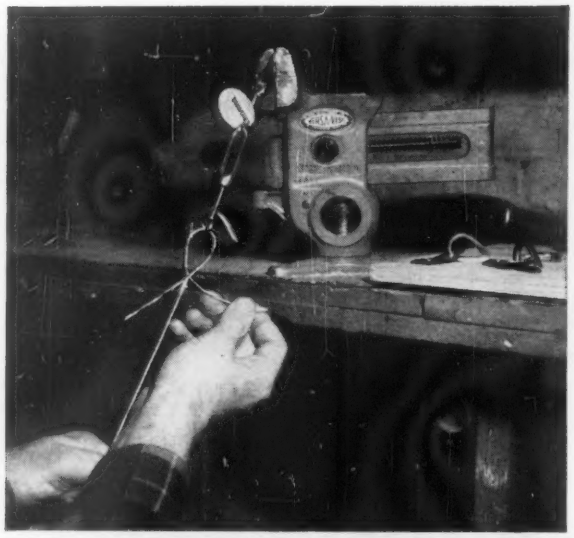
THIS IS THE LAST installment of the series describing construction of *Frolic*. If you would like to build the boat, but would prefer full-size plans for the job, they are available from the designer, Pi-Craft, 344 Sacramento St., San Francisco 11, Calif., for $15. Included are complete instructions, economy tips and detailed methods of making your own set of sails with an ordinary home sewing machine.

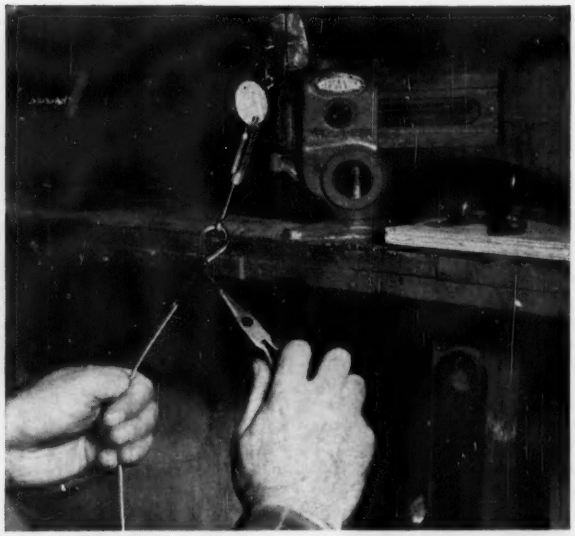
Frolic Part III

SCOTT MORGAN

Designed by Arthur Piver



1. Half of wire strands have been relaid in spiral groove (left when wire was untwisted) around eye formed by first half of strands to make Flemish eye splice in diamond stay around thimble.



2. When Flemish eye splice is complete, free ends of wire strands are cut to length of 2 in. then served (wrapped tightly with fine copper wire) and soldered to assure a smooth, strong joint in wire rope.

3. Before applying fiber-glass cloth and resin, scratches, gouges, countersunk nails are smoothed with putty.

THE MAST FOR *Frolic* is shaped from a 24-ft. length of fir 2 x 4, construction-grade, select. While Sitka spruce is preferred for spar construction, it usually is difficult to obtain in most localities. Fir is somewhat heavier than spruce, but will do just as well if the piece has a straight, fine grain and no knots. The first step in shaping the mast is to outline and cut bevels lengthwise on the 2 x 4 stock as indicated in detail A, Fig. 4. This can be done (the cutting) with a portable circular saw. Note that the 1⅛-in. bevels are cut on the side that is to become the after, straight side of the mast on which the mast track is mounted. To save a little work beveling, the taper should be cut first on the forward, upper 7 ft. of the mast, Fig. 4.

The boom is sawed to the same bevel angles as the mast, so to save time, it is best to saw like bevels on each of the spars before changing the saw-blade angle for the other cuts. After the bevels are cut, further shaping is done with a wood rasp, during which the corners left by the beveling are rounded, as in detail A, Fig. 4. After this is done, your spar should have a cross section that is a tear-shape with slightly flat sides. This gives a good traditional appearance and reduces wind resistance. Note that the straight after edge of the mast does not have rounded corners. These may be rounded slightly when sanding the completely shaped mast to a smooth finish, but not before marking a centerline longitudinally where the sail track is to be fastened. Thirty feet of ⅝-in. track are required for *Frolic*, 20 ft. for the mast and 10 ft. for the boom. Nylon track is recommended because it weighs only a fraction as much as brass track, does not tarnish and stain sails, slides will not jamb on it and it can be shipped easily rolled in a small coil. Since nylon track is relatively new on the market, it may be necessary to buy it from the manufacturer direct (75 cents per ft., Featherweight Marine Hardware Co., 10 Edgewood Ave., Glen Head, N. Y. Newly-patented nylon ties or clamps for fastening the slides to the sail, also are available from the same

company at 20 cents each). All the spars are given two coats of clear polyester (fiber glass) resin, which provides a tough, flexible, varnish-like finish. However, this should be postponed until you have had a chance to mount all fittings temporarily that go on the spars (mast and boom), Fig. 19. Then, remove the fittings and apply the resin.

First, cut the slot for the masthead sheave according to the dimensions given in detail B, Fig. 4. Be sure to allow enough clearance at the top of the slot to allow the halliard (¼-in. manila rope) to pass. The slot can be made by first drilling out most of the waste with a ⅜-in. bit and working out the rest with a wood rasp. A faster way, if you have a portable saber or jig saw is to drill

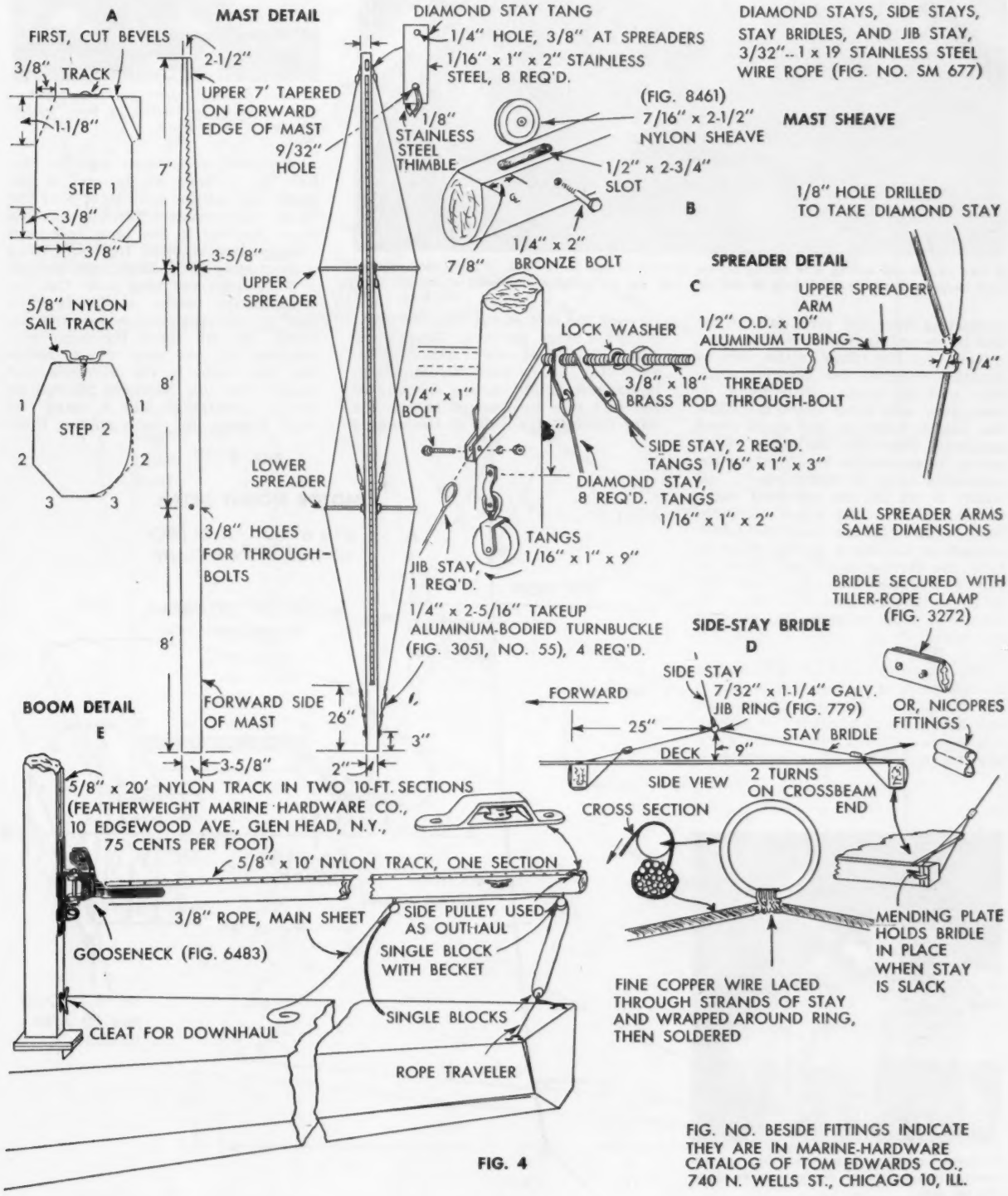
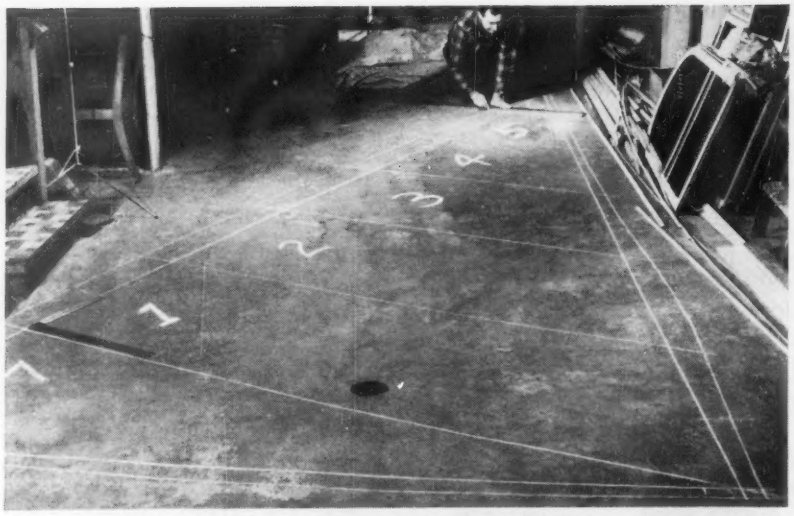


FIG. 4

FIG. NO. BESIDE FITTINGS INDICATE THEY ARE IN MARINE-HARDWARE CATALOG OF TOM EDWARDS CO., 740 N. WELLS ST., CHICAGO 10, ILL.



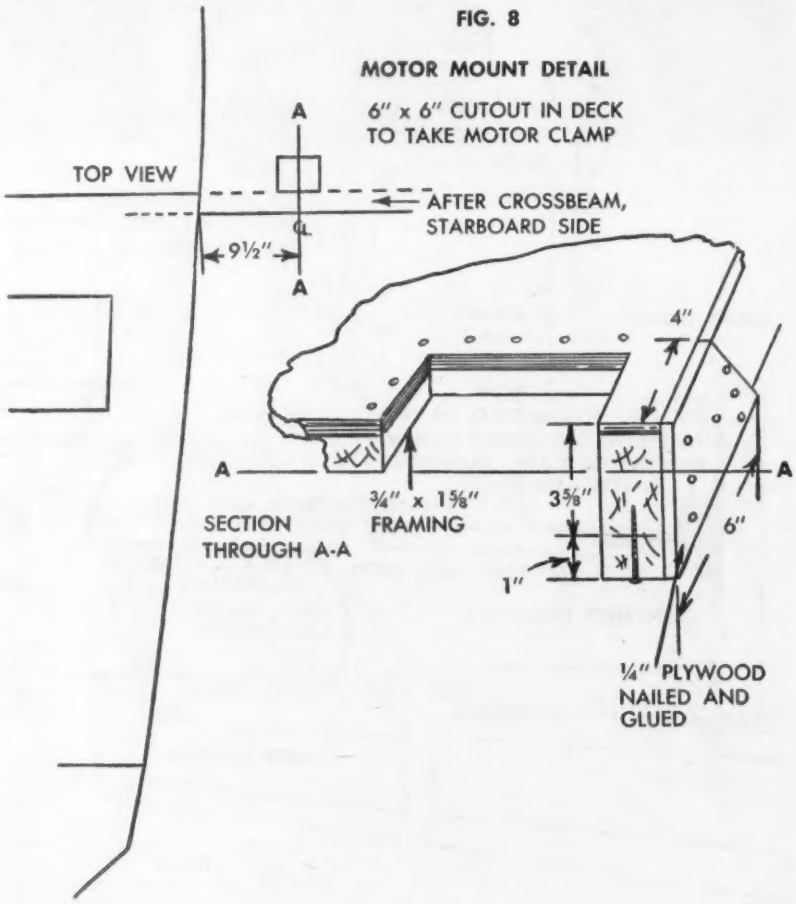
5. First step in sail making is to outline pattern of mainsail and jib full size on flat surface. Author used basement floor, scrubbed clean so that sail cloth was not soiled when placed in position.

6. When numbered cloths are sewn together, they are placed on outline on floor, marked with pencil, cut to shape.

a starting hole and then cut out the slot to an outline drawn on the mast.

Next, cut the tangs to the various lengths required for the diamond, side and jib stays; drill them as necessary and bend them to follow the angles taken by the stays when installed. Note that the stays which are to be secured to the mast on the spreaders must be drilled ⅜-in., all others ¼ in. Cut the spreader arms to length, also the brass through-bolts required for the upper and lower spreaders. Locations for the holes to take the through-bolts are given in Fig. 4. The diamond stays are held in place on the spreader arms by means of ⅛-in. holes drilled through the latter, ¼ in. from the ends, detail C, Fig. 4.

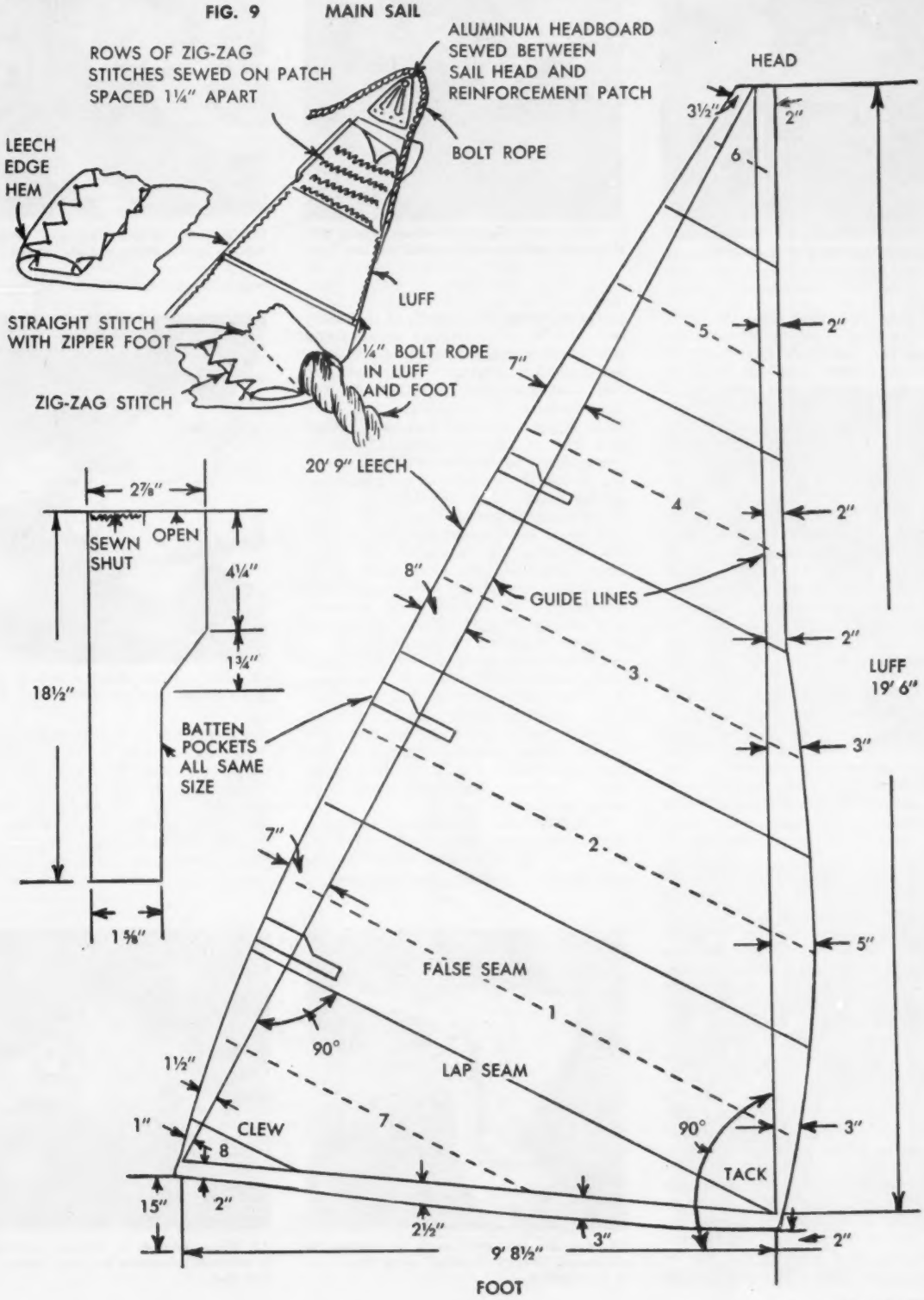
The diamond stays are pulled tight by two pairs of turnbuckles bolted to the mast 3 in. from the lower end and at the lower spreader as shown. These are installed next, opening one eye on a turnbuckle, slipping it through the hole on the diamond stay, then reclosing the eye. To get the exact length of wire required for each stay, screw each turnbuckle to its longest length, splice one end of the wire to a turnbuckle, thread the wire through the hole at the end of a spreader arm, then through the hole in the tang at the end of the mast and pull the wire tight over the ⅛-in. stainless-steel thimble that has been inserted in the tang hole previously. Pull the wire tight and wrap a short strip of masking tape around it 6 in. from the tang hole. Cut the wire at the center of the tape so that severed wire strands do not unravel. Do the same for each succeeding stay. An easy way to splice the stay ends to the thimbles and tangs is to use Nicopres fittings as shown in detail D, Fig. 4, using two such fittings for each splice. How-



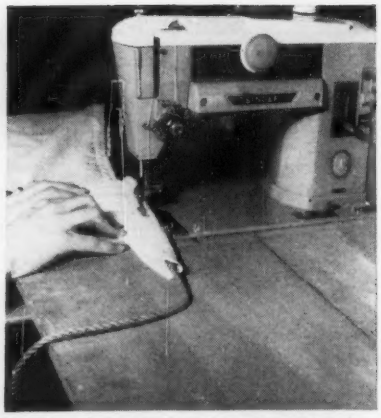
7. Sewing machine flush with table, permits sewing straight line of zig-zag stitches along the sail hems.

ever a neater splice can be formed fairly easily as shown in Figs. 1 and 2. This splice is known as a Flemish eye and is made by unlaying (untwisting) about one-half of the strands (keeping them together) for a distance of 12 in. from the end of the wire. Then, a thimble is slipped on the tang (or turnbuckle eye as is the case in Fig. 1), a loop is formed with one-half of the wire strands, making it a size that will permit a snug fit on the thimble, which is not slipped into the loop until the other half of the strands are rewoven around it. This is next. Holding the first loop in place between the thumb and forefinger, lay the strands of the second

FIG. 9 MAIN SAIL



10. After sewing reinforcement patch to the sail, parallel rows of zig-zag stitches are sewn.



11. Zipper-foot attachment permits sewing line of straight stitches snugly against the bolt rope.

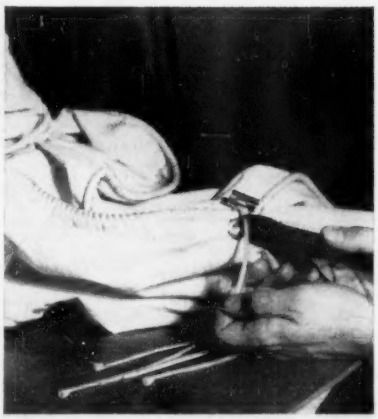
12. Two pairs of pliers are used when nylon clamp is used to fasten sail slide to sail.

half of the wire rope into it, going around the loop in the opposite direction than you did when first forming it. The ends then are cut back to 2 in. of the thimble and secured in place by wrapping them tight against the wire rope with fine copper wire as shown in Fig. 2. The copper-wire serving, or wrapping, may be soldered or wrapped with tape. One advantage of the Flemish eye splice is that it can be undone easily if it should be necessary to shorten a stay after the boat is in use. The turnbuckles make it easy to apply proper tension on the stays and make adjustments as necessary. Diamond stays should be quite taut since the mast receives much of its strength and rigidity from them. The jib stay and side stays need not be as tight. The latter are installed as shown in detail D, Fig. 4.

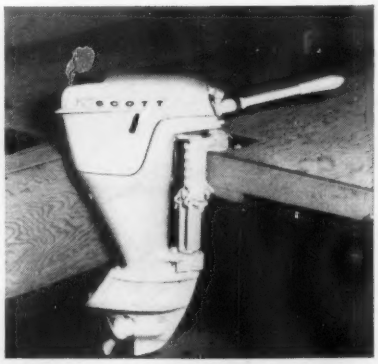
For skipper-builders of *Frolic* who plan to sail their craft on large bodies of water and those who want the versatility of a sailing auxiliary, a motor mount to take a small outboard motor is provided on the starboard crossbeam aft, as shown in Figs. 14 and 15. This is simply a 6 x 6-in. cutout in the plywood deck centered 9½ in. from the starboard side of the main hull at the deck edge. The latter dimension permits the motor to swing to its turning radius and may vary according to the motor used. The dimensions given will accommodate the new Scott 7½ HP motor. For other motors it is a good idea to clamp the motor in place on the crossbeam before the deck is on, and pivot it to left and right to make sure there is sufficient clearance between the motor cowl and the main hull. About ⅜ in. clearance is adequate.

While it is not necessary to fiberglass *Frolic*, a good fiber-glass job (cloth and resin applied to the bottoms of the main hull and floats up to 2 in. above the chines) will reduce maintenance and prolong the life of the boat, especially if the boat is left at its moorings for much of the boating season. Polyester resin and medium-weight boat cloth from Taylor and Art Plastics were used on the boat built for WORKBENCH. For best results, it is important to provide roughly-sanded surfaces that are free of oily compounds, and to apply the materials strictly according to the manufacturer's instructions. Since working time of catalyzed resin is quite short, ½ to 1 hr., you must have everything ready before mixing the hardener with the resin. Cut the fiber glass cloth to fit the shape of the hull, allowing a 3-in. overlap for all pieces to be applied, and numbering the pieces according to their locations on the boat. Then, set them aside temporarily. All holes, nicks and countersunk nailheads must be filled and sanded flush before applying resin. Never use an oil-base putty for this. Instead, use a fiber-glass compound such as Tapox Flex Bond, Fig. 3, or its equivalent. Duratite surfacing putty also may be used.

The first step in actually applying the fiber glass is to roll or brush on a coat of activated resin, giving end grain and other unusually porous surfaces extra amounts of resin. When the resin is tacky, roll the cloth on it exactly where it is to go. Then, smooth the cloth tight against the hull, Fig. 17, working out bubbles and adding resin where it is needed. Cloth that is not tight against the planking, or that has insufficient resin, will appear white. Properly



13. After sail-slide clamp is pulled tight, the end is clipped short with a wire cutter as shown.



14. Scott 7½ HP, 40-lb. motor is clamped to crossbeam. Plywood "transom" cover strip is yet to be installed.

15. When motor is in tilted-up position, there is adequate clearance between throttle handle and deck.

coated cloth will appear transparent. Succeeding coats of resin usually are applied on a tacky, previous coat, best results being obtained if you don't wait until the resin cures before following with a second coat. Two coats of resin should be sufficient, although the hull bottoms and other areas that receive hard use should be given three coats. Color may be applied by mixing pigment of the desired color in the last resin coat, or the boat may be painted with marine paint. One of the new epoxy-base paints, Copon, a product of Taylor and Arts Plastics Co., was used on our boat, Fig 18. Fiber-glass cloth and resins for boat work also can be obtained from the Castolite Co. Because epoxy-base paints require adequate ventilation, most of this work on our model was done after it was taken out of the basement and set up in a garage.

Sails for the *Frolic* consist of a mainsail and a jib, with a total area of 140 sq. ft. Although sail making is not a difficult job for the average amateur with access to a sewing machine equipped with a zig-zag stitch and zipper-foot attachment, do not expect a perfect suit of sails if this is your first attempt. The problems are getting fullness in a sail where it is needed and allowing the right amount of material along the curved edges so as to produce the correct shape when the sail is used the first few times, during which the sail cloth will stretch somewhat. However, if you lay out the lines of each sail on a flat surface according to the dimensions given in Figs. 9 and 16, and cut and sew the cloth accurately, a serviceable suit of sails will be produced for about one fourth the cost of ready-made sails. Of course, if you are a dedicated racing skipper, you will be satisfied only with sails of dacron made professionally. The sails shown are made of cotton from a kit that has been made available to *Frolic* builders through arrangements with Simpson and Fisher, 240 Steuart St., San Francisco, Calif., for $37.50. The kit contains everything

(Continued on next page)

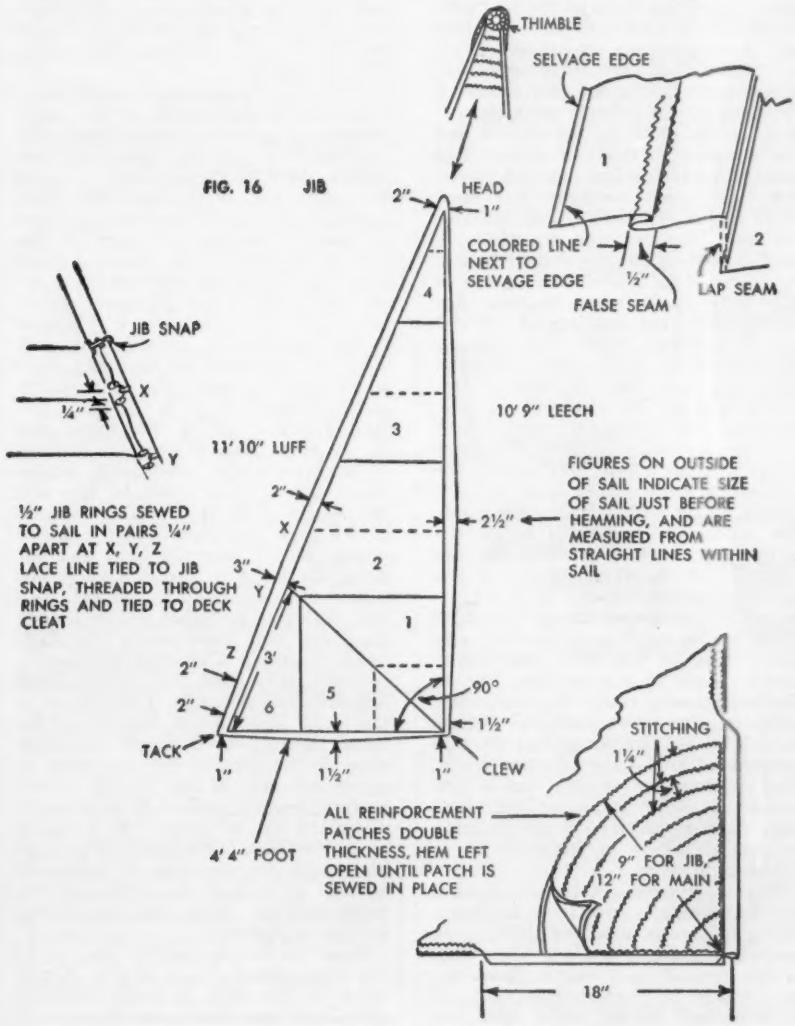
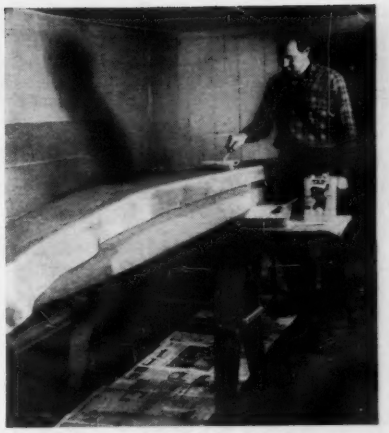
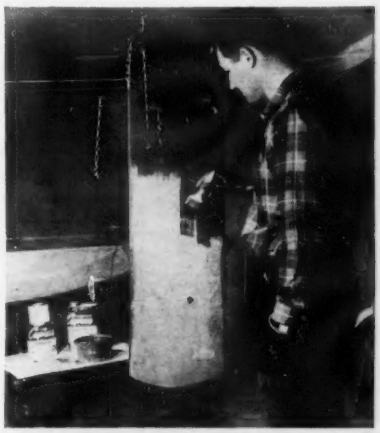


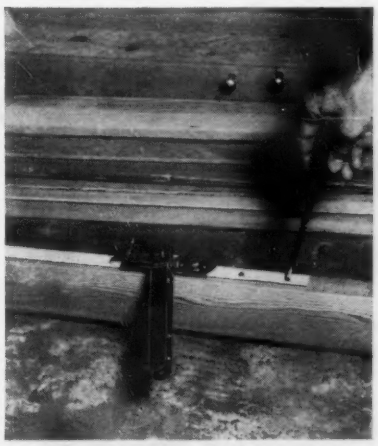
FIG. 16 JIB



17. After surfaces of hull have been coated with resin, cloth is applied, smoothed with roller to remove air bubbles and assure complete contact.



18. Epoxy-base paint, such as Copon, product of Taylor and Art Plastics, is used to paint hulls and all exposed surfaces of the Frolic.



19. All fittings, such as sail track and boom gooseneck first are positioned and installed, then removed and mast and boom are coated.

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Frolic Part III

you need to make a suit of sails, except thread and a sewing machine. Number 30 cotton thread is recommended for all seams, but No. 24 may be substituted.

The first step in making your sails is to draw an outline of each one full size. The basement floor, scrubbed clean so as not to soil the cloth, was found by the author to be ideal for this purpose, Fig. 5. Note that each piece of cloth is given a number according to the sequence followed when sewing them together. The dotted line running through the center of each numbered section represents a false seam, Fig. 16. The cloth provided in the sail kit is 37 in. wide, so that when false seams and lap seams are sewn, there is a seam throughout the sail every 18 in. The reason for false seams is to reduce stretching of the sail. You make this seam by folding the cutout piece of cloth lengthwise so that the selvage (finished) edge at one side touches the colored line next to the other side. Crease the cloth at the fold with a steam iron, then turn the cloth over and flatten it out. Next, mark off and draw a line 1 in. from the crease on the side facing the line to which you touched the selvage edge before, pick up the cloth by the crease and fold it again so that the crease line touches the pencil line you just made. Iron this crease too and after each of the folded edges is zig-zag stitched, you will have a false seam ½ in. wide in the exact center of the cloth. All succeeding cloths are given a false seam in the same manner. Adjoining cloths are overlapped, colored line to selvage edge, and zig-zag stitched along each edge. Cloths 1 through 6 are sewn together first, 7 and 8 next, after which the two sections are joined together. Note that the lap seam formed by cloths 1 and 7 forms a line that bisects the sail at the tack corner and forms a 90-deg. angle with the straight guide line along the leech. After all the cloths are sewn together they are laid flat on the floor on top of the chalked outline of the sail and a pencil line is drawn along the edges of the sail to correspond exactly with chalk lines on the floor. The cloths then are cut to this outline, Fig. 6. The sail now is ready for hemming, although the three central seams should be let out somewhat first to prevent a tight, inward-curling leech. This is done by ripping out a few inches of these seams at the leech edge and repositioning the overlap so that it tapers to about ⅛ in. at the outside edge.

Next, turn over a ⅜-in. hem around the entire sail and iron it down. Along the leech, turn the cloth again and zig-zag stitch it along each edge of the hem, Figs. 7 and 9. However, do not sew this hem within 18 in. of each corner, as you must first sew the reinforcing patches in each corner, Fig. 10 and Fig. 16. Next, make a series of marks on the sail 2 in. from the edge along the luff and foot, and draw a line connecting them. The edge of the sail then is folded over to this line and ironed. This line must be on the proper side of the sail, so that when the edge is folded over to it, the previously ironed ⅜-in. hem will be underneath. This ⅜-in. hem now is sewn down to the sail, making a pocket 1 in. wide in which the luff and foot bolt ropes are enclosed. This is done after the corner-reinforcing patches are sewn on, which is the next step. Here again, the seam along the luff and foot are sewn only to within 18 in. of the corners, to be sewn later when the patches are on.

The bolt rope is threaded through the luff and foot hems, starting at the tack and working one end of the rope toward the head, the other to the clew. Allow about 12 in. of the rope to project from the clew and head corners, to be whipped to the leech corners later. Then sew the bolt rope in place, using a zipper-foot attachment to get the straight stitches snugly against the rope, Figs. 9 and 11.

Next, insert a grommet at the tack. This can be done with a ball peen hammer and some means of spreading the neck of the inside of the tubular part of the grommet before using the ball of the hammer. The grommet should be located as close as possible to the bolt rope at the turn of the tack. Then make a seizing around the bolt rope about 1 in. on either side of the grommet. Tie a line to the grommet, attach it firmly to an immovable object and pull hard at the end of the bolt rope which projects from the head of the sail. Measure 19 ft. 6 in. from the tack grommet along the rope, and at this point seize the rope to the top of the aluminum headboard, which should have been sewn to the sail previously as in Fig. 9. The balance of the rope is pulled over the headboard, seized securely to it and led down the leech of the sail for 6 in., seized and the balance cut off. The sail cloth now probably will be longer than the bolt rope along the luff, but it is seized to the bolt rope every several feet, with the excess cloth left between seizings, most of it in the lower one-third of the sail where most fullness is desired. The bolt rope in the foot of the sail then is stretched and seized in the same manner from a point 9 ft. 9 in., with about 18 in. of rope left hanging from the clew to be used as an outhaul rope for the sail. A grommet now is placed in the clew, at the point farthest aft in the foot of the sail as indicated.

Next the batten pockets are cut to the dimensions given in Fig. 9 and sewn to the sail midway between false and lap seams on cloths 1, 2

and 4 as shown. The dimensions allow for a turned-under edge ¼ in. wide. As with the reinforcement patches, try to use material that has the weave running in the same direction as that of the cloth of the sail. Note that the lower half of the batten pocket is sewed shut, which makes tie-in lines unnecessary. The batten is inserted through the open part of the jog. The final step is attaching the sail slides. These may be sewn to the sail with marline, or attached with the patented nylon clamps as shown in Figs. 12 and 13. Note that in the latter case a No. 1 grommet first is attached to the sail next to the bolt rope to prevent the clamp from tearing the sail cloth. The slides are attached at every seam along the luff and at 12-in. intervals along the foot of the sail.

The jib is made in the same manner as the main sail, except for the miter seam that bisects the clew. The upper portion (cloths 1, 2, 3 and 4) and lower portion are sewn together separately, leaving about 1 in. excess material along the miter edges for making an overlap seam when joining the two sections. The bolt rope is in the luff only, leading around the tack grommet and being cut off a few inches behind it along the foot. Reinforcing pieces are sewn to each corner, the same as with the mainsail. The top of the bolt rope is made into an eye with a thimble before inserting the other end of the rope in the luff and working it through the pocket to the tack. Since the jib is mounted on a club, a lace line must be used in the lower portion of the sail instead of jib snaps. This is to let the club lie on deck when the sail is lowered. Sew three pairs of ½-in. rings about ¼ in. apart horizontally in the jib luff where you normally would sew jib snaps. Positions of the rings are indicated by the letters X, Y and Z, Fig. 16. The ⅛-in. lace line then is tied to the jib snap which is at the next seam above, then led downward through the rings as shown and secured to the jib-stay cleat. This covers sail making for *Frolic* in one easy lesson. It is impossible to cover any but the more important points on sail making in a few paragraphs, therefore it would be wise to obtain a book on sailmaking for supplementary information, such as "Sailmaking Simplified," by Alan Gray, Rudder Publishing Co. △ △

IN THE NEXT ISSUE . . .

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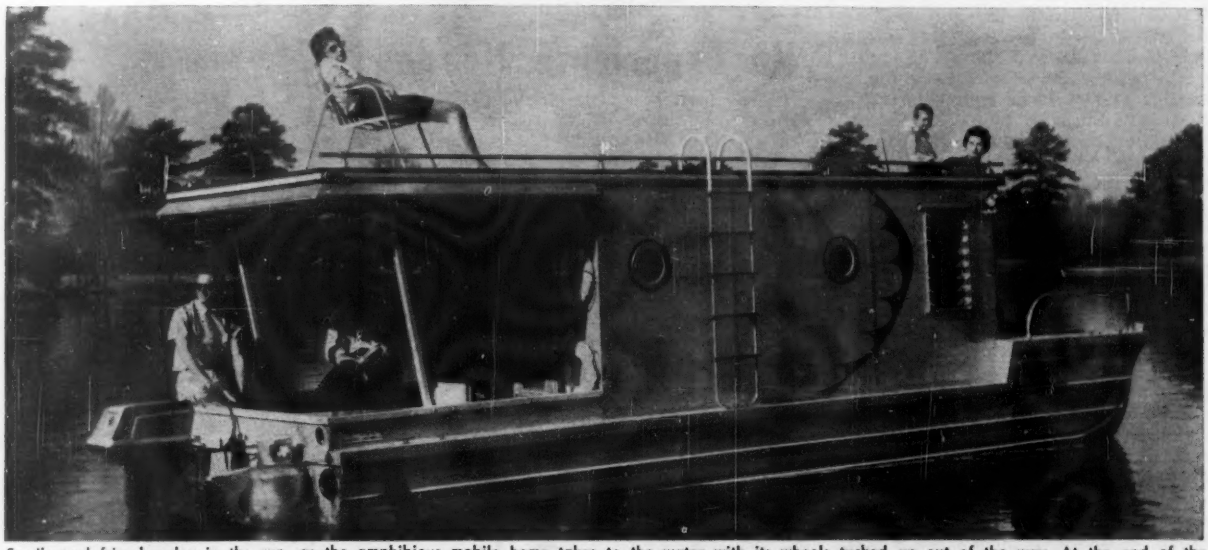

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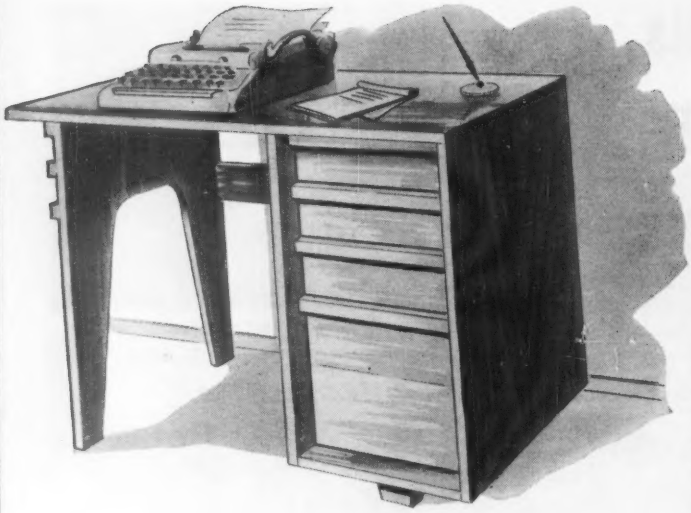
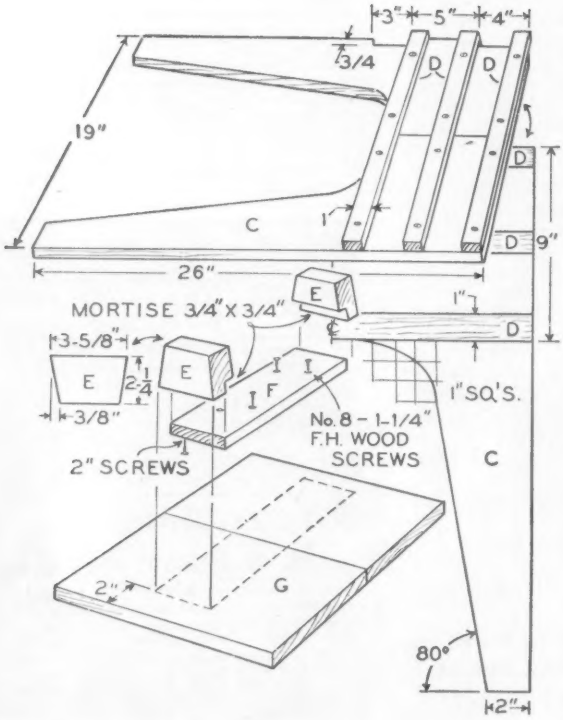
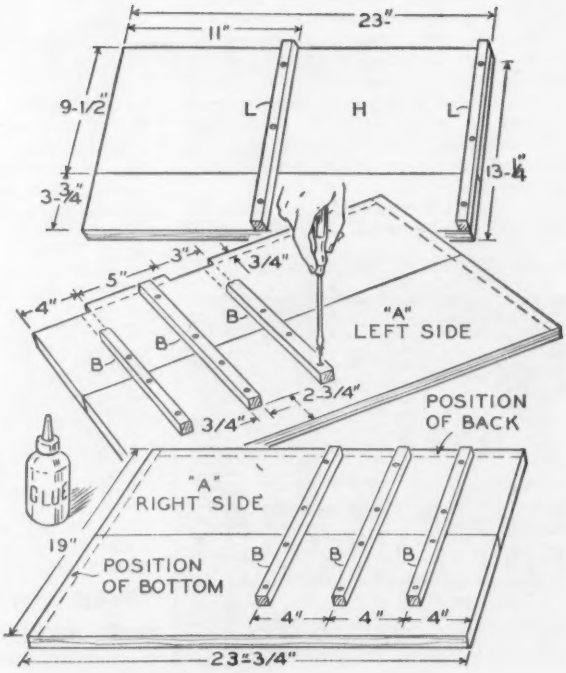


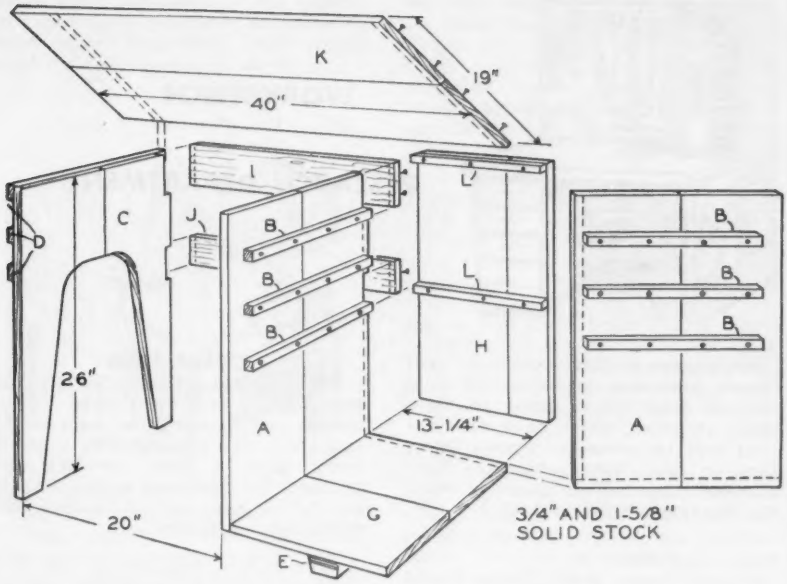
MATERIALS LIST

A	4 Sides of drawer cabinet, ¾ x 9½ x 23¾ in.
B	6 Drawer runners, ¾ x ¾ x 15½ in.
C	2 Leg boards, ¾ x 9½ x 26 in.
D	3 Leg cleats, ¾ x 1 x 19 in.
E	2 Cabinet legs, 1⅝ x 2¼ x 3⅝ in.
F	1 Leg cleat, ¾ x 3⅝ x 13¼ in.
G	2 Cabinet-bottom boards, ¾ x 9½ x 13¼ in.
H	1 Back, ¾ x 13¼ x 23 in.
I	1 Rail, ¾ x 4 x 21½ in.
J	1 Stretcher, ¾ x 3 x 21½ in.
K	2 Top boards, ¾ x 9½ x 40 in.
L	2 Back cleats, ¾ x ¾ x 13¼ in.
M	3 Upper-drawer fronts, ¾ x $3\frac{15}{16}$ x 13⅛ in.
N	1 File-drawer front, ¾ x $10\frac{15}{16}$ x 13⅛ in.
O	3 Upper-drawer backs, ¾ x 1¾ x 12⅜ in.
P	1 File-drawer back, ¾ x 9½ x 12⅜ in.
Q	6 Upper-drawer sides, ⅜ x $3\frac{3}{16}$ x $15\frac{7}{16}$ in.
R	2 File-drawer sides, ¾ x 10⅛ x $15\frac{7}{16}$ in.
S	4 Drawer bottoms, ⅜ x 12⅜ x $15\frac{7}{16}$ in.
T	3 Inner-fronts, upper drawers, ¾ x $2\frac{9}{16}$ x 12⅜ in.
U	1 Inner-front, file drawer, ¾ x 9½ x 12⅜ in.
V	4 Handles, ¾ x 1 x 13⅛ in.

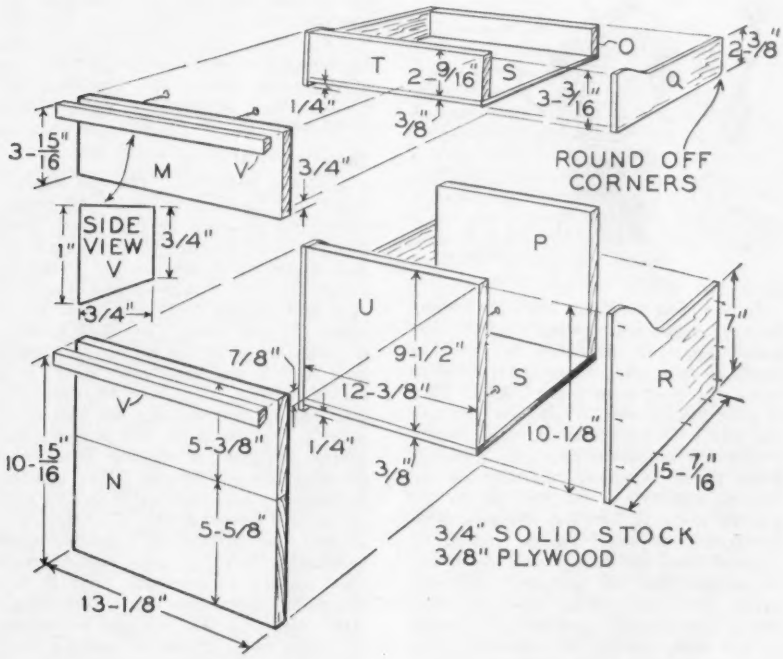
Home Typewriter Stand







DESPITE ITS SMART, contemporary lines this home typewriter stand requires no fancy cabinetwork. The three upper drawers hold necessary supplies, the lower drawer is a letter-size filing cabinet. Birch or white-pine solid stock can be used, pieces being cleated together as indicated. Hardwood-faced plywood also would do well, and would eliminate the need for so many individual pieces. The cleats, however, inside the cabinet serve as drawer guides and on the "leg" are a decoration, so the use of plywood would not eliminate them. When plywood is used, veneer tape is cemented to the edges to conceal the end grain. Detailed drawings show every step in construction of the desk, the Materials List describes all the items needed for the assembly, except veneer tape. △ △



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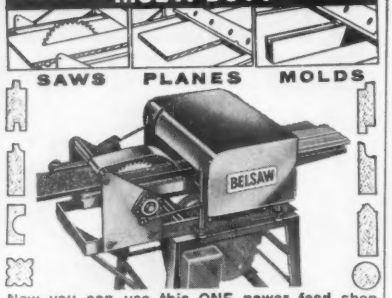

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WORKBENCH

RESEARCH DEPARTMENT

Each issue in this column we will choose questions on home and shop subjects from letters sent to us. Only those questions which have wide appeal will be answered here. Questions on specialized subjects will be answered by individual letter from the Research Editor's desk.

Research Editor:

I need to apply a weed killer to my lawn but I'm afraid of damaging my shrubs and flower beds. The weed killer I want to use is in the form of a dust, or perhaps it is better described as a very fine granulated mixture, and I need to apply it with a spreader which I will rent from my hardware dealer. But no one seems to be able to advise me how to protect the flower beds and shrubs. Is there an effective way to do it?—A.Y., Nebr.

Dear Mr. A.Y.:

If you read carefully the instructions for application which come with the material you will probably be told to apply it only when there is no wind to carry the drift onto other plants. This is good advice and if followed you are not likely to have any damage result. There are mornings and late evenings when there is almost literally no air stirring and this is the time to do the job. In order to be most effective most herbicides, or weed killers, should be applied when the foliage and leaves are damp and thus the mornings and evenings when there is no wind are ideal times. Don't apply just before a storm as the rain washes the material from the individual leaves and thus renders it more or less ineffective. If you wish you might take the additional precaution against any possible drift by covering beds of flowers with light plastic sheet. The small, low-growing shrubs can be protected in the same way. Of course, it's important to see that the sheets cover the foliage entirely and it's a good idea to weight the edges of the sheets to hold them in place.

CORRECTION

The National Audubon Society has informed us that the booklet "Birdhouses and Feeders" we said in the last issue was free actually costs 15 cents, plus 10 cents handling and postage. We apologize to the Society and to the hundreds of readers who wrote for the booklet.

Research Dept.:

I have several home-shop machines with cast-iron worktables and I'm having trouble keeping these tables from rusting during the summer months. I have to use a coating of oil or grease which I don't like, as I have to spend a lot of time cleaning off the oil and grease before I can use the tools. Then when I'm through work—often only a few hours in the evening—I have to go through the oil-coating job again. Isn't there some other way of preventing these tables from rusting?—E.N., Fla.

Dear Mr. E.N.:

Yes, use paste wax. It's not positive proof against rusting under all conditions, but it does prevent rust from forming at an average humidity level. In fact, a coating of wax on the metal accomplishes two things—protects against rust and makes the work slide much easier. It also makes the tables easier to clean off after use as the fine wood dust from a saw does not "stick" to a waxed surface. You have to renew the wax coating occasionally but this takes only a few minutes. To prepare the tables surfaces for waxing first do a thorough job of cleaning with a solvent, preferably a non-flammable solvent such as carbon tetrachloride. (WARNING: If you use carbon tet provide ample ventilation to carry away fumes which may become dangerously toxic if permitted to concentrate in a closed room.) *After cleaning the surfaces to remove all traces of oil or grease, apply a paste wax to the surface, allow to dry and*

polish just as you would the wax coating on furniture or your car. A couple of coats rubbed to a fairly high polish make a durable protective surface.

Dear Research Editor:

You may think it unusual to be inquiring at this time of the year about what to do to prevent ice from forming on my low-pitched roof but I want to know what to do about it before winter comes again. The ice forms along the eaves above the wide cornice, or soffit, and builds up to the point where it forms a dam for water running down from the ridge as the snow melts. Some of this water apparently seeps back under the shingles into the attic. The water has damaged the plaster in two rooms on the north side of the house.—S.M., Minn.

Dear Mr. S.M.:

This often happens on the low-pitched roofs of homes recently built in the colder climates. It is caused, of course, mostly by heat loss through the attic and roof, the heat being sufficient to melt the snow accumulation below the ridge and above the plate. Water runs down on the snow which remains on the wide overhang simply because this area is much colder than that warmed by the heat from the attic. Here it freezes and forms a dam high enough to retain considerable water. This of course, seeps back under the shingles and into the attic as you have described. As a remedy many homeowners scrape snow from the roof immediately after a heavy snowfall and thus prevent the dam from forming. Naturally, this is a rather tedious and disagreeable job. One preventive step is to add to the insulation blanket in the attic floor and increase the louver area in the gable ends. In a low attic the free louver area, that is, the area exclusive of the louver boards, or slats, should be at least 1 sq. ft. for each 100 sq. ft. of attic floor space. Some attics require a greater louver area for adequate ventilation. Another remedial measure, said to be quite effective, is use of electrical cables to melt the snow accumulation on the overhangs. This cable is especially designed for the purpose and is attached to the roof immediately over the cornice in a zigzag line which permits the heat from the cable to affect the entire area involved. The installation is controlled by a switch conveniently located either inside or outside the house. Current consumption is relatively low and it is only necessary to operate the installation during the time the ice dam is likely to form.

Research Editor:

I'd like to have you list for me a selection of hand tools that can be used for home repairs and for such craftwork that can be done with hand tools. I'd like a fairly complete listing, so that I can begin with a representative set of tools, as many as 25 or 30 items. I wish to purchase these at one time, rather than buy one unit at a time.—C.E., Tenn.

Dear Mr. C.E.:

A selection of hand tools is never really complete, in the sense that you always have a tool at hand for any possible use that may turn up. You will always run into situations where you have to make a chisel, screwdriver, brace or plier do double duty. And, it pays well to buy the best quality tools, even though the initial cost may be much higher than for the same items of lower quality. Following is a listing of hand tools that we would consider best for all-around use in the home:

1 Crosscut saw (12 points to the inch)
1 Rip saw
1 Back saw (for miter box)
1 Hacksaw
1 Coping saw
1 Nail hammer
1 Nail set
1 Folding rule
1 Combination square
1 Bit brace
1 Pair pliers
1 Fore plane
1 Block plane
3 Wood chisels (or set of 6 or more)
1 Rose countersink
1 Cold chisel
3 Auger bits (or set of 6 or more)
1 Hand drill (with 6-8 drill points)
1 Push drill (with drill points)
1 Marking gauge
1 Soldering iron (electric)
1 Screwdriver (5-in. blade)
1 Screwdriver (4-in. blade)
1 Screwdriver (3-in. blade)
1 Screwdriver bit (for brace)
1 Tack hammer
1 Spokeshave
1 Rabbeting plane
1 Small level
1 Doweling jig

It will be noted that this list by no means includes all hand tools available, and also that some substitutions could be made if desired or if the tools are needed immediately. For example, you may not need a tack hammer, but you might have immediate use for a small bench vise of the type that attaches to the bench top with a clamp screw. Or you might have need of a small miter box of the type having a metal saw guide and a wood frame, and at the same time have little use for a level.

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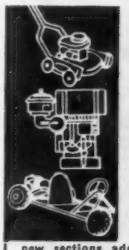

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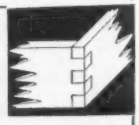

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Such substitutions can be made without in any way impairing the usefulness of the selection as presented above. Usually it's best to purchase 3 auger bits, or a set of 6 as suggested, and then fill in as needed until you have a complete set from ¼ to 1 in. rising by 16ths. Wood chisels can be purchased by the same general plan. You'll need a high-quality oilstone to keep tools sharp.

Research Dept.:

I have an old home and it's time to repaint all over—siding, sashes and all the rest. My problem is the window sashes, they are in rather bad condition. They are six-light sashes mostly and the wood is weathered and the putty loosened and fallen out in nearly every one. The frames are rather loose and shaky but don't seem to be rotted at the joints. What to do about them? Should I replace them with new or attempt to repair and repaint them? —P.L., Calif.

Dear P.L.:

You do not say how many are involved so it is rather hard to say with certainty, as the labor and time involved in repairing the sashes is a point to be considered. Assuming that you decide that they are worth repairing and repainting, then perhaps it is best to first remove the sashes one by one from the window frames and give each one a thorough going over. If the sashes are old then they will be fitted with counterbalancing weights. To remove the lower sash you first remove the stop on the inside. It'll be fastened in place either with nails or screws. If the stops are fastened with nails use care in prying them loose as otherwise they may split. Only one need be removed. Then lift the lower sash to clear the stool (often erroneously referred to as the sill) pull one side toward you so that you can remove the weight cord which is housed in a stopped groove in the edge of the stile. Remove both cords, of course, to free the sash. Then remove the upper sash by first pulling it down about half way. Pry out the rectangular stop on the same side of the frame as the one you removed first. Then pull the sash toward you in the same way as before so that you can remove the weight cord. Now lay each sash on sawhorses and remove all the loose putty. Don't remove that which is solidly bonded to both the glass and wood. Check the joints of the stiles and rails (the stiles are the vertical side members and the rails are the upper and lower cross members) for looseness. If any joints are loose, drive out the hardwood pins and replace. Older sashes had the joints pinned with small hardwood pins; later sash are joined with metal pins. Waterproof-gluing the joint will add strength. Then sand thoroughly and paint the sash all over with a prime coat, taking care to cover all those areas where putty was removed. When dry, put in glazier's points where needed to hold the glass in position. Where putty has been entirely removed from the glass panes it's important to rebed the glass in putty. This is done by removing the pane, scraping away all the old putty bedding, and priming the wood. When dry, run a thin line of putty in the rabbet corners all around the opening. Then replace the glass pane, pressing it down into the bedding putty and fastening it in place with glazier's points. Now finish up the job by applying putty to all joints where it was removed. Finish smooth with the putty knife. Allow the putty to set for a week before applying finishing coats of paint. During this time the sash can be replaced, of course, as the putty will dry very well with the sashes in place. Take each window in turn and give it the same treatment.

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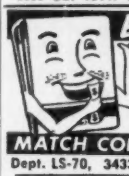

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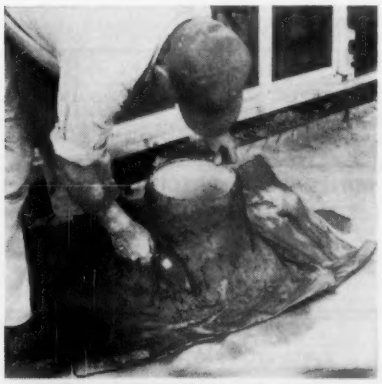

3. Trowel next is used to shape and form concrete to simulate rough appearance of genuine tree stump that still has bark.

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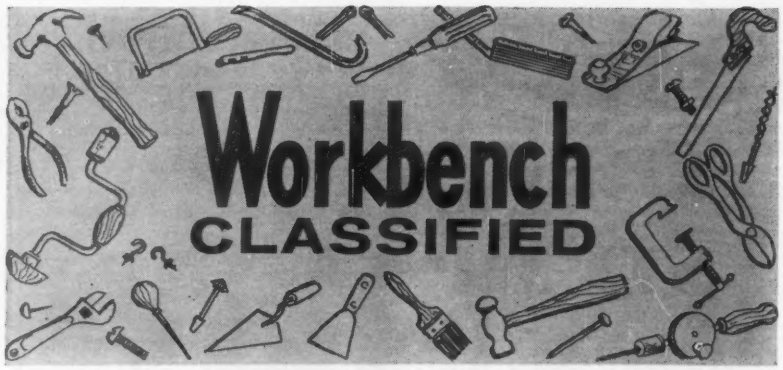

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EARTHWORMS

FREE PICTURE Folder, "How to Make $3,000 Yearly, Sparetime, Backyard, Raising Earthworms!" Oakhaven-27, Cedar Hill, Texas.

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WOODCARVING, GUNSTOCKS. Miniature animals, figurines. Hermania Anslinger, 320 South Ralph, Spokane, Wash.

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"POWER DRIVES Handbook"—36 pages illustrating many types motor drives for model autos, boats, displays, turntables, etc. Mail 25 cents cash, returnable first order $3.00 or more. Wilson's of Cleveland, Dept. WB, P. O. Box 8995, Ft. Lauderdale, Fla.

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YOU CAN Chalk Talk. 44 page Catalog, 10c. John Balda, Trick Cartoonist, Oshkosh, Wisc.

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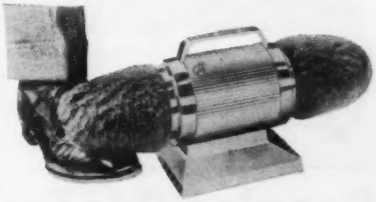
NO STOOP, NO BEND, no mess with this electric shoe polisher. It's a "walk-up" floor unit with a "step-on" switch, or can be used on a table for close-up, high-quality shoe polishing. Buffer on one side is for black shoes, the other for brown. Can be bolted to the floor if necessary. Located beside the door, it makes that last-minute shine as simple as taking a step. Dremel Mfg. Co., Racine, Wis.



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Dept. ML-175-10 UPHOLSTERY TRADES SCHOOL 721 Broadway N. Y. 3, N. Y.

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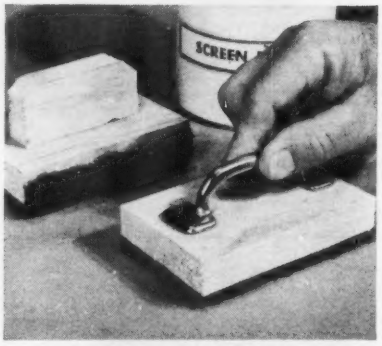
WORKBENCH SHOP TIPS

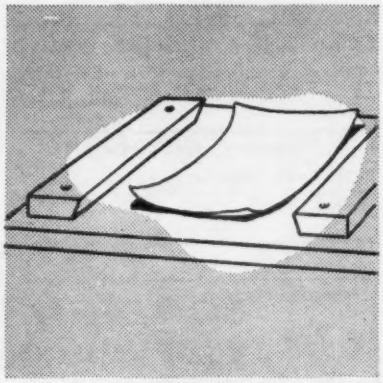


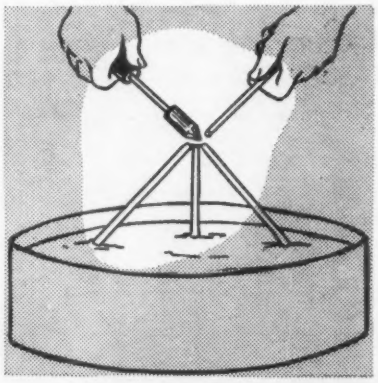
Better Screen Painter

Most homemade screen painters are made like the lefthand model. For your next model, use a drawer pull for an easy-to-grip handle, and cement the scrap of carpet material to the bottom only. No paint then will be smeared on the screen frame from the edges, as is the usual case.
Bil Toman, Palatine, Ill.

Enlarger-Easel Aid

Two strips of wood, a slight angle cut on the facing edges, are used by one photo enthusiast to quickly flatten paper on an enlarger easel. One strip is attached solidly to the easel, the other is movable and is weighted. The strips and easel are painted flat-black, a sheet of yellow paper is used for focusing.
Clinton B. Ford, Winsted, Conn.



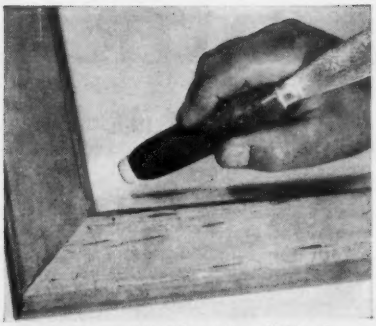


"Vise" Made of Sand

Irregular-shape objects or complicated assemblies that cannot be clamped or hand-held for soldering can be positioned accurately in a container of sand. Several inches of sand in a large metal container, such as a cut-down oil drum, will provide sufficient anchoring for fairly large work pieces.
Daniel Bousha, Jackson, Mich.

Light Holds Litter Bag

Finding a spot to hang a litter bag in your car is no problem if you have a flashlight of the type fitted with a magnet. Tear a hole near the upper edge of the bag and fit the light inside the bag to hold it under the instrument panel.



Putty Knife Modified

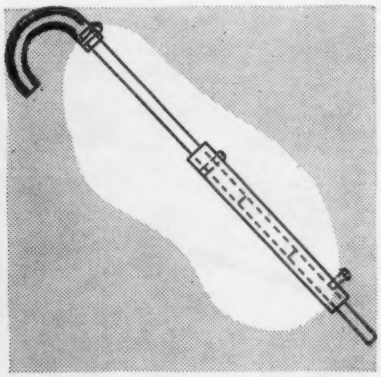
Screwed to the end of the handle of a putty knife, a rubber bumper, of the type used to stop sliding doors, will reduce the chance of glass breakage when the handle is used to tap a pane into place in a frame.
Bil Toman, Palatine, Ill.

Getting Rid of Hammer Dents

When driving a nail into a wood surface on a home project, a miss with the hammer usually results in an unsightly dent in the surface. These dents can be removed by taking a water-soaked sponge, and placing it on the dent, allowing it to remain there overnight. This will cause the wood to become soaked around the area and cause the dent to regain its natural shape as before being struck with hammer. Then it should be allowed to dry and sanded to give it smooth finish ready to be stained, etc.
Walter M. Shutok, Uniontown, Pa.

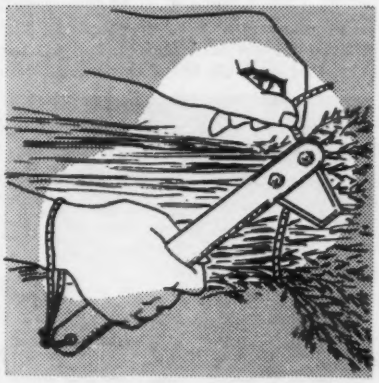
Walking-Cane Gauge

When required to cut several walking canes to suit the users, one craftsman made the gauge shown. The dowel in the lower end of the gauge is moved up and down and held with a thumbscrew. When a cane user determines the most comfortable length, the gauge is held against the cane and it is cut.
Philip M. Dunn, Philadelphia, Pa.



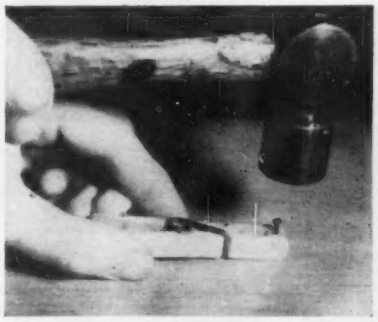
Utility Cutting Tool

Bolting a blade section from a mower to a slotted handle makes a handy cutting tool for use on grain bundles and for other jobs. A rope looped through a hole in the handle will permit carrying the tool on your wrist so it is ready for use.
Daniel Bousha, Jackson, Mich.



Shoepolish Dauber Paints Between Fence Staves

To paint the edges of fence staves that are closer together than ¾ of an inch is almost impossible even with a small brush. What's more, you waste a lot of paint that way. Instead, I use a dauber from a shoepolish bottle. Prevents paint from streaking on surface of staves too.
Arthur S. Green, Chicago.



Painless Nail Starting

When you have some short nails to drive and there is the possibility of pounding your fingers, use a spring clothespin to hold the nail while you start it. Just clamp the nail in the jaws of the pin and start it this easy, painless way.
John A. Comstock, Wellsboro, Pa.

Sharpening Can Opener

To sharpen the cutting wheel on a wall-type can opener, run a strip of fine emery cloth through it several times. Wash the wheel afterward to remove any emery grit.
Edward Bentley, Jackson, Mich.

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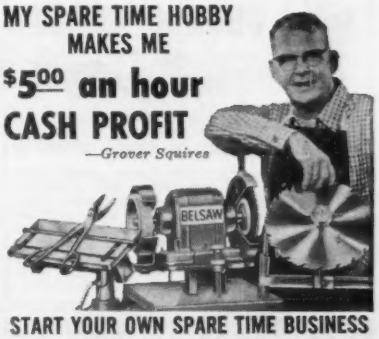

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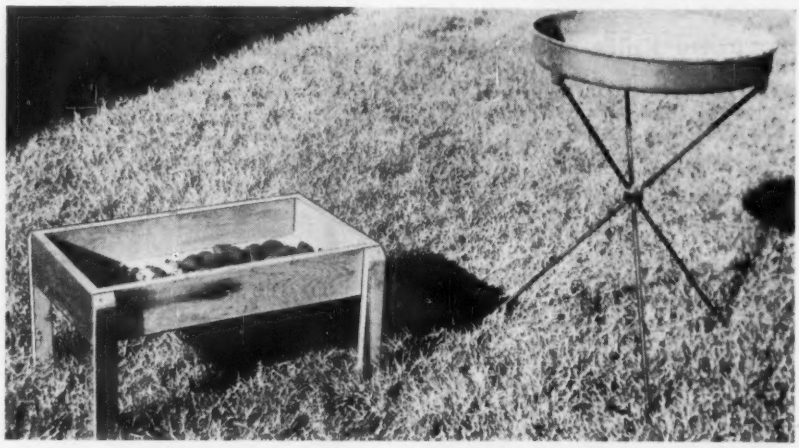
CHARCOAL SAVER

FIRES THAT BURN long after the food has been cooked simply waste charcoal. To prevent this waste, pour water on the fire, then dump the doused coals into a frame to which screen wire has been stapled. The frame shown is made of 1 x 4s, the sides being 2 ft. long, the ends 14 in. long. Legs are 12 in. long. The water washing through the charcoal in the screened frame removes ashes and small particles, leaving only unburned charcoal. The coals will dry overnight and are ready to be used again the following day, when they are mixed with fresh charcoal. △ △



Low-Cost Film Splicer

EVEN FILM THAT IS TORN, or that has badly worn sprocket holes can be repaired and spliced without loss of frames with the use of this simple film-splicing device. Both 8 and 16-mm film can be handled. Secret is special splicing tape with pre-formed sprocket holes, and pins on splicer that accurately align the holes and frames. Movie film is positioned accurately by other pins when cutter on device is used to assure matching, absolutely square ends on lengths of film that are to be spliced together. The splicer is small enough to be slipped in your pocket and carried to wherever a projector is used, so that it is handy for last-minute repairs on film. Unit costs just $1.98 from Hudson Photographic Industries, Inc., Irvington-On-Hudson, N. Y. △ △

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- 50c Everyday greeting cards, 7½c box!
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- $1-$3 Hard covered books, 20c each!
- 49c Retail Xmas window decorations, 10c per set.
- $49.95 Ret. 7x50 Binoculars, $12.95.
- $15 Retail Electric Percolators, $5 ea.!
- New Phono Records, 45 & 78 RPM, 7c each.
- BUTTONS, 144 for 25c.
- CIGARETTE HOLDERS, 1c each.
- $1 Kiddies Handbags, 3c each.
- $1 Val. Billfolds, 15c each.
- $2.50 Val. Wallets, 30c each.
- LADIES APRONS, 6¼c each.
- D. E. Razor Blades, $1.50 per 1000 blades.
- $1 Mufflers, Scarfs, 12½c each.
- Plastic Toy Guns, 2c each.
- 25c Rudolph Reindeer brooches, 2c each.
- 69c Insect Repellent, 5c each.

(Above bargain list merely illustrates type of Bargains usually found in this paper. Lists Naturally change from month to month.)

PLUS HUNDREDS OF OTHER SENSATIONAL BUYS!

ONLY IN "BARGAINS" WILL YOU Find Every Month Similar—

• BANKRUPT, CLOSEOUT, SURPLUS BARGAIN OFFERS • BARGAINS AT WHOLESALE • BELOW WHOLESALE • RARE MONEY MAKING OFFERS • New and Unusual Item Information

ONE issue of this SENSATIONAL Publication can make or save you MORE MONEY than the COST OF THE ENTIRE SUBSCRIPTION! This is the ONLY Big National paper of this type in circulation! You'll be AMAZED, FLABBERGASTED and DELIGHTED at the wonderful listings in every issue!

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Search your newsstand high and low. YOU WON'T FIND ANOTHER PAPER ANYWHERE LIKE IT! "Bargains" is available by SUBSCRIPTION ONLY. It's the only paper we know in existence that actually lists Bankrupt, Closeout, Surplus offers every month. Bargains so rare and terrific, you'll blink your eyes in amazement!

BIG 1960 CHRISTMAS ISSUES!

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BUY CHEAP—SELL CHEAP! That's why thousands of smart salesmen, store owners, jobbers, etc. buy this paper! They know where to buy at CHEAPEST PRICES! NO REASON why YOU can't DO THE SAME! Many articles, features every month show you HOW to sell bargains for big profits—if you don't know how!

How To Buy! How To Get Ahead!

"BARGAINS" also features pages of interesting articles + features on how to buy wisely; How to add to your income; How to make spare time profits.

SAVE Up to $1000—EARN Up to $3000!

We HONESTLY think it's possible for you to do this within a year's time. For PROOF . . . see testimonial letters . . . or better still, PROVE IT FOR YOURSELF BY SUBSCRIBING.

Look What Subscribers Are Saying!

Here's What Subscribers say about "Bargains" After Receiving Their first copies!

". . . Your book BARGAINS is just wonderful and I am very glad I subscribed to it."—H. K., Port Monmouth, N. J.

". . . As a result of answering one of the ads (in Bargains) it has resulted in extra profits of $40.00 and upwards per month."—J. H., Alabama.

". . . Saw your wonderful paper and enjoyed every bit of its reading and adv. It's a Great Paper."—M. S., Vermont.

". . . I am very pleased with BARGAINS. I have never seen anything like it and am looking forward to my future copies especially the Christmas edition."—Mrs. D. M., Maine.

". . . Received my first issue of Bargains and may I say it is a great magazine."—M. H. C., Alabama.

". . . I think BARGAINS is the best merchandise publication I have ever seen (And I have seen hundreds)."—S. P. C., Brooklyn, N. Y.

". . . Received my 1st copy of BARGAINS the other day and am very pleased, the information you publish may be just the 'shot in the arm' my business needs."—D. S., St. Albans, N.Y.

". . . I have found your magazine very helpful."—W. A. P., Ogdensburg, N. Y.

". . . Received your paper. Thank you very much. It is one of the finest we have ever seen."—F. D., Iowa.

". . . I was the recipient of my 1st copy a few days ago. I am completely satisfied with the periodical. I also wish to express my appreciation to you for having made the magazine available to me. I shall be pleased to continue my subscription as long as the magazine is available."—W. S., Wash.

"I have been a subscriber of your 'Bargains' magazine for nearly a year, and very much pleased with it. I wouldn't want to miss a copy of it. So I am sending in the valuable coupon you sent me with $2.00 in cash. I am so glad to be one of your subscribers."—Mrs. E. L., Richmond, Calif.

PLUS MANY OTHERS!

THE ABOVE LETTERS WERE NOT SOLICITED IN ANY WAY OR MANNER—ALL ARE IN OUR OFFICE FILES! They are the enthusiastic reaction of subscribers after seeing their first copies of BARGAINS!

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